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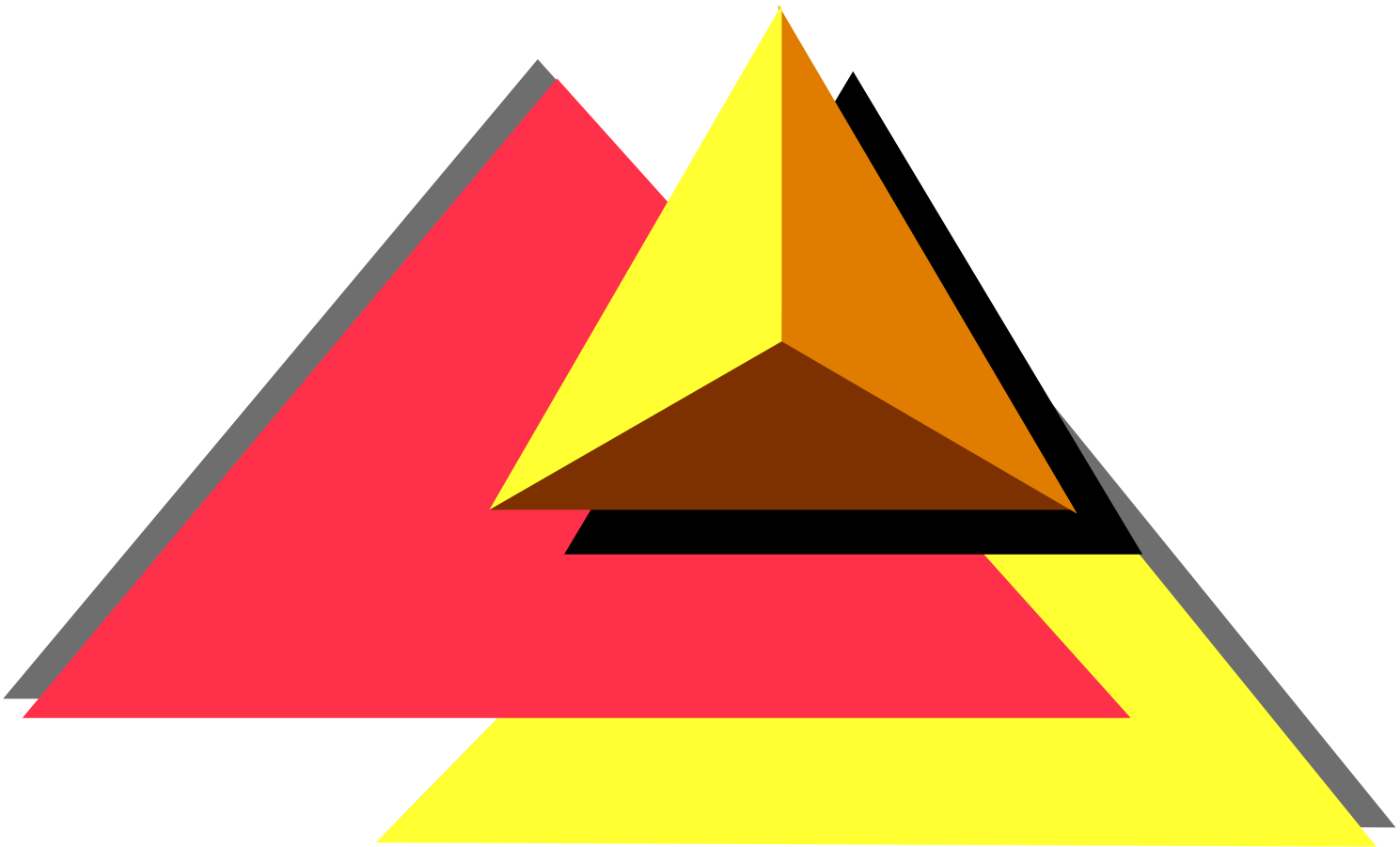
**INTERNATIONAL BUSINESS MACHINES CORPORATION**

**Dated: January 29, 2014**



# Overview of OS/2 Warp Server for e-business

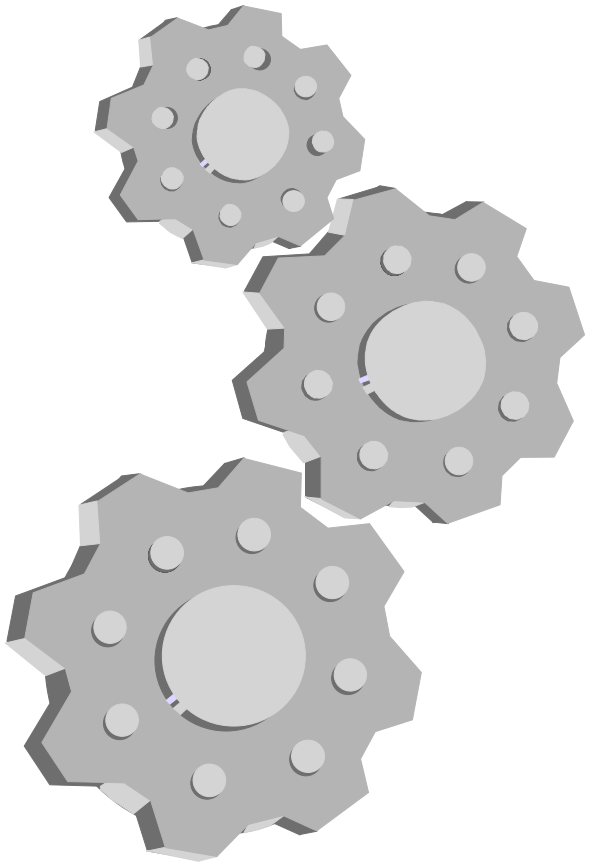
# Objectives

After completing this unit, you should be able to describe the following features of OS/2 Warp Server for e-business:

- OS/2 Base Operating System
- Logical Volume Manager
- Journaled File System
- Year 2000 and the Euro
- Updated Desktop
- File and Print Sharing Services
- TCP/IP Services
- Netscape Communicator
- Java Support
- Neighborhood Browser Enabler
- Windows NT User Account Manager
- LDAP Client Support
- I2O Support
- Tivoli Management Agent
- Lotus Domino Go Webserver
- IBM WebSphere Application Server
- Personally Safe 'n' Sound Backup and Recovery
- Advanced Print Services
- Remote Access Services
- Additional New Features
- Replaced or Discontinued Components

# OS/2 Base Operating System

- The base operating system for OS/2 Warp Server for e-business is an advanced, multitasking, 32-bit operating system that runs DOS, Windows, and OS/2 16-bit and 32-bit applications and utilizes SMP hardware configurations.



# Logical Volume Manager

- The Logical Volume Manager (LVM) provides flexibility for configuring and managing disk drives on your system. LVM replaces the Fixed Disk Utility (FDISK). Disk drives and partitions are configured as logical volumes with a new set of utilities, which support the following enhancements:
  - The drive letter for a disk volume is explicitly assigned when the volume is added, and it is persistent across OS/2 system restarts.
  - A disk volume drive letter can be changed at any time; however, drive letters assigned to operating system volumes should not be changed.
  - Under most conditions, OS/2 does not need to be rebooted after a disk volume drive letter is added or changed.
  - The disk volume drive letters do not need to be contiguous.
  - CD-ROM drive letters can remain unchanged when disk volumes are added.
  - LAN drive letter assignments can remain unchanged when disk volumes are added.
  - Logical volumes can span multiple partitions and physical disks.

# Journaled File System

- The Journaled File System (JFS) is a scalable, 32-bit, performance-oriented file system. To facilitate quick recovery and restart after system failures, JFS uses database journaling techniques, enabling it to restore file systems quickly, which contribute to improved server availability. JFS raises the previous file-size limit of two gigabytes (GB) to two terabytes (TB). The partition size limit is raised from 64 GB to 2 TB. JFS volumes can be increased in size, using Logical Volume Manager (LVM), without having to be reformatted.

# Year 2000 and the Euro

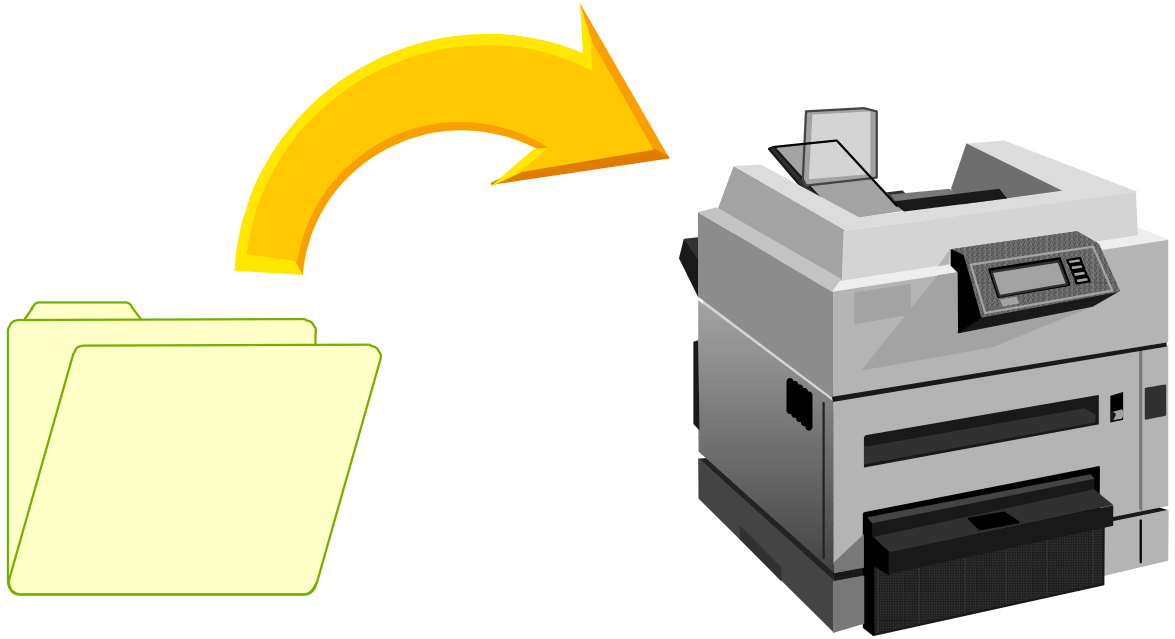
- OS/2 Warp Server for e-business is fully enabled to support the Year 2000 (Y2K) and euro currency transitions.
- The new currency in Europe goes by the name euro. The euro is the monetary unit of the European Monetary Union (EMU) that was introduced alongside national currencies on the first of January 1999. The original members of the EMU are Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal, and Spain. The national currencies of these countries have a fixed exchange rate with the euro, and will be withdrawn after a transition period, which is planned for completion in 2002.
- Support for the euro sign as the currency symbol is available when you specify country information during the installation process.

# Updated Desktop

- The Desktop in OS/2 Warp Server for e-business is based on the Desktop of OS/2 Warp 4. In addition, new icons are on the Desktop, and some existing icons are in a different location than they were in previous versions of OS/2 Warp Server. Take a few minutes after installing OS/2 Warp Server for e-business to become familiar with the new Desktop. Refer to *OS/2 Desktop Guide* for more information about the Desktop.

# File and Print Sharing Services

- File and Print Sharing Services enables the server to share directories, printers, and serial devices across a local area network (LAN).



# TCP/IP Services

- TCP/IP Services enables the server to distribute the TCP/IP Internet protocol configuration to client workstations. Highlights of the TCP/IP services include:
  - Dynamic Host Configuration Protocol (DHCP) enhancements, which include Remote IPL (RIPL) support and BootP server capability
  - Dynamic Domain Name Server (DDNS) enhancements, which enable the network administrator to more easily manage IP addresses
  - Improved buffer management, resulting in increased performance
  - Improved printer streaming and printer security

# Netscape Communicator

- Netscape Communicator 4.04b lets you access and navigate the Internet with Netscape Navigator, send and receive e-mail with Netscape Messenger, keep track of the latest postings in your favorite newsgroups with Netscape Collabra, and create your own Web pages with Netscape Composer. Some applications and services, such as those found at IBM Software Choice, use the browser as a graphical user interface (GUI) for installing, uninstalling, or updating other software programs.

# Java Support

- The OS/2 Warp Developers Kit, Java Edition, Version 1.1.7 delivers a full implementation of Java, including both the run-time and development packages. This release improves performance and provides euro support. Significant enhancements in graphics, throughput, and scalability set new standards for Java Virtual Machine (JVM) performance.

# Neighborhood Browser Enabler

- The Neighborhood Browser Enabler is an OS/2 Warp Server for e-business service that functions as a master browser for Windows clients. The master browser service permits OS/2 Warp Server for e-business domain resources to be viewed and shared from the Windows NT 4.0, Windows 98, and Windows 95 Network Neighborhood.

# Windows NT User Account Manager

- The Windows NT User Account Manager eases the management of user and group accounts in a heterogeneous server environment. This feature allows user and group accounts that are defined and managed in the OS/2 Warp Server domain to be replicated to a Windows NT 4.0 server.

# LDAP Client Support

- OS/2 Warp Server for e-business supports the Lightweight Directory Access Protocol (LDAP), a standards-based Internet directory protocol.
- The OS/2 LDAP Client Toolkit for C and Java Version 1.0 is for C and Java programmers who want to enable new or existing applications to access, search, and update LDAP servers, using LDAP V2 or LDAP V3 protocols.

# I2O Support

- OS/2 Warp Server for e-business helps simplify the attachment of new devices. I2O is an industry-standard architecture that defines a new interface between a processor and I/O adapters. This specification provides for movement of function from the system CPU to the adapter card. Use of I2O, either on the system board or as an adapter in servers, reduces the CPU load, which helps increase system throughput. OS/2 Warp Server for e-business supports I2O for SCSI adapters and for ethernet and token-ring LAN adapters.

# Tivoli Management Agent

- The Tivoli Management Agent (TMA) extends the client/server hierarchy and enhances the scalability of a Tivoli Management Environment (TME). TME is a systems management tool for enterprise-wide, heterogeneous networks. The TMA increases the number of resources that can be managed and, at the same time, enables those resources to be used more efficiently.
- Besides providing full functionality down to the endpoints, the TMA reduces the physical requirements to manage a system. The TMA is a replacement for the SystemView agent and supports OS/2 using TCP/IP.

# Lotus Domino Go Webserver and IBM WebSphere Application Server

- OS/2 Warp Server for e-business includes Lotus Domino Go Webserver 4.6.2.6. Lotus Domino Go Webserver is a scalable, high-performance Web server that is easy to install and maintain. It includes state-of-the-art security, site indexing capabilities, and support for JDK 1.1.x. Lotus Domino Go Webserver makes it possible to maintain a productive Web presence in a diverse and dynamic environment. After you install Lotus Domino Go Webserver, you can add Java support by installing IBM WebSphere Application Server 1.1. IBM WebSphere Application Server is a plug-in for Lotus Domino Go Webserver and includes:
  - A Java servlet engine that implements the JavaSoft Java Servlet API
  - IBM additions and extensions to the Java Servlet API for enhanced session tracking and personalization
  - Support for JavaServer Pages (JSP), a powerful approach to dynamic Web pages
  - A database connection manager for caching and reusing connections to JDBC-compliant databases
  - Data access JavaBeans (additional Java classes for accessing JDBC-compliant databases)
  - CORBA Support—an object request broker (ORB) and a set of services that are compliant with the Common Object Request Broker Architecture (CORBA)

# Personally Safe ’n’ Sound Backup and Recovery

- Personally Safe ’n’ Sound (PSnS Backup and Recovery) is a powerful backup utility that lets you safeguard your OS/2 system against loss of data. It allows you to set up a Backup Strategy for each activity you perform on your machine. The strategy, once employed, provides protection against all of the likely causes of data loss: user errors, hardware malfunctions, malicious damage, and disasters.
- For more information about using PSnS, refer to *OS/2 Warp Server Backup/Restore User’s Guide* and the other online books that come with it. More information is available on the Internet at the following address:

  http://www.software.ibm.com/os/warp/warp-server

# Advanced Print Services

- Advanced Print Services, also known as Print Services Facility/2 or PSF/2, allows you to print file formats that your printer typically does not support. Advanced Print Services automatically performs data stream transformations to convert the data in a document into the type of data required by the printer. For example, Advanced Print Services can transform a PostScript document into an advanced function presentation (AFP) document that can be printed on a high-speed IBM printer, or it can transform an AFP document into one that can be printed on an HP LaserJet printer.
- Advanced Print Services lets users send print jobs from computers running OS/2, Windows, DOS, or AIX.

# Remote Access Services

- Remote Access Services, a replacement for LAN Distance, includes a remote access server that allows NetBIOS and point-to-point protocol (PPP) clients, including Microsoft Windows NT, Windows 98, Windows 95, IBM OS/2 Internet Dialer, and IBM 8235 users, to remotely access the LAN. The following services are available:
  - Answering incoming calls to establish connections
  - Routing and filtering data to bridge the Remote Access Client workstation to the LAN
  - Providing security for LAN resources
  - Performing other administrative functions for the wide area network (WAN)
  - Assigning IP addresses with DDNS support
- Remote Access Services allows multiple remote workstations to dial in concurrently and access LAN resources. The number of remote workstations supported is determined by your server’s processing power and its communications adapters.

# Additional New Features

The following additional features are new with OS/2 Warp Server for e-business:

- Long format option during installation. refer to “Formatting the Installation Volume” on page 32 for more information.
- CHKINST.EXE²software sniffer² utility checks the system prior to installation to determine what preparation is required and then reports the results.
- Increase in maximum number of ACLs, open files, connections, searches, and shares. The maximum number of ACLs for the Journaled File System (JFS) is limited only by available disk space. The following capacity parameters in the server section of the IBMLAN.INI file have been increased:
  - maxopens
  - maxsearches
  - maxconnections
  - maxshares
- These changes increase the number of users, files, searches, and shares the server can maintain. refer to *Performance Tuning* for more information.

# Replaced or Discontinued Components (1 of 2)

- The following components, previously installed with OS/2 Warp or OS/2 Warp Server, are replaced in OS/2 Warp Server for e-business:
  - Fixed Disk Utility (FDISK.COM), replaced by Logical Volume Management Tool (LVM.EXE)
  - Fixed Disk Presentation Manager Utility (FDISKPM.EXE), replaced by Logical Volume Manager Graphical User Interface (LVMGUI.CMD)
  - Java 1.0, replaced by Java 1.1.7
  - Pulse, replaced by CPU Monitor (CPUMON)
  - LAN Distance, replaced by Remote Access Services
  - SystemView Agent (Netfinity TME 10), replaced by Tivoli Management Agent (TMA)

# Replaced or Discontinued Components (2 of 2)

- The following components, previously installed with OS/2 Warp or OS/2 Warp Server, are not part of OS/2 Warp Server for e-business:
  - Password Coordinator
  - Network Signon Coordinator
  - BonusPak
  - OS/2 Warp Tutorial
  - OpenDoc
  - WarpGuide
  - VoiceType
  - Hibernate (Trapdoor)
  - Novell NetWare Client for OS/2
  - Dual boot is not supported
  - Easy Path installation
  - Mobile File Sync
  - PCOMM Lite 4.1
  - Keyworks
  - HP JetAdmin
  - Installation from diskettes, replaced by installation from CD
  - Remote client installation is not supported

# Unit Summary

You should now be able to describe the following features of OS/2 Warp Server for e-business:

- OS/2 Base Operating System
- Logical Volume Manager
- Journaled File System
- Year 2000 and the Euro
- Updated Desktop
- File and Print Sharing Services
- TCP/IP Services
- Netscape Communicator
- Java Support
- Neighborhood Browser Enabler
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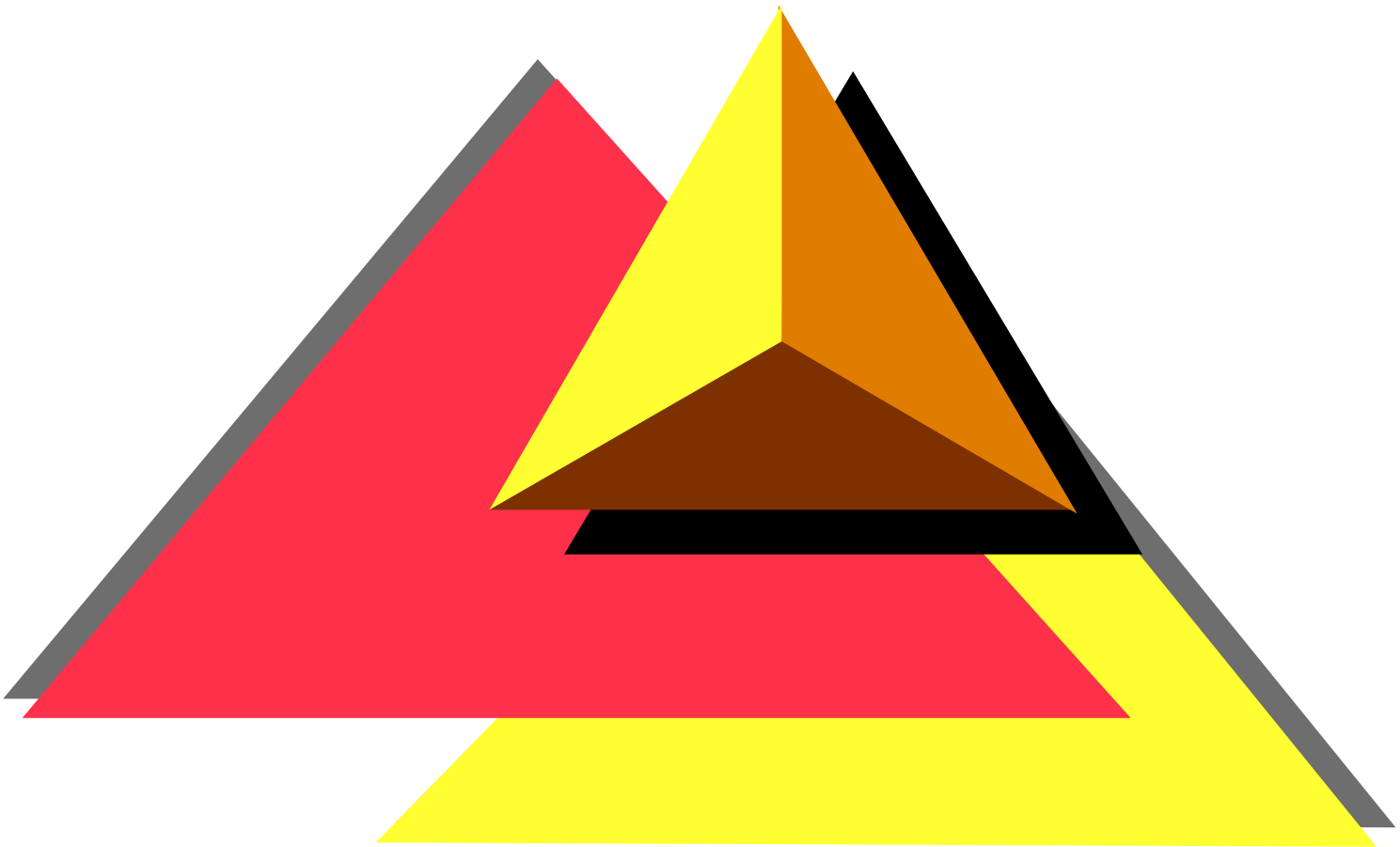
- Lotus Domino Go Webserver
- IBM WebSphere Application Server
- Personally Safe 'n' Sound Backup and Recovery
- Advanced Print Services
- Remote Access Services
- Additional New Features
- Replaced or Discontinued Components



# Planning OS/2 Warp Server for e-business Installation

# Objectives

After completing this unit, you should be able to:

- Determine OS/2 Warp Server for e-business features to be installed
- Select desired features from list of available features
- Determine if the requirements for all desired features have been met
- Anticipate and resolve any potential ramifications of OS/2 components that will be deleted during installation (OpenDoc, VoiceType, Ask PSP, and so forth)
- Create a final list of OS/2 Warp Server for e-business features to be installed and their requirements
- Determine other products to install
- Develop an Installation Strategy
- Identify existing systems to be migrated
- Identify and gather third-party hardware support diskettes, adapter device drivers, and peripheral device drivers (if necessary)
- Determine overall installation sequence and strategy

# System Requirements (1 of 2)

- To install OS/2 Warp Server for e-business and use its services on the server, you need at least the following minimum hardware:
  - One or more Intel-compatible Pentium or higher processors with a speed of at least 133 MHz.
    - Note: A multiprocessor system must either comply with the Intel Multiprocessor Specification, Version 1.4 or 1.1, or it must be one of the following computers, each of which has its own proprietary SMP architecture:
    - Compaq Proliant 2000
    - Tricord PowerServer, models 30 and 40
    - IBM PC Server 720
  - A minimum of 32 MB of random access memory (RAM), but 64 MB or more provides better performance, depending on which services are installed.

# System Requirements (2 of 2)

- A minimum of 120 MB of available hard disk space for the base operating system. A minimum of 200 MB is required for the base operating system and all default installation items. A total of 500 MB is recommended for a typical installation, depending on which services and components are installed. For installation requirements of services and components, refer to the table in “Hard Disk Space Requirements”.
- A 1.44 MB, 3.5-inch diskette drive, configured as drive A.
- A 640 x 480 (16-color) or higher resolution VGA display.
- An IBM-compatible mouse.
- A CD-ROM drive supported by OS/2.
- A LAN adapter card supported by MPTS.
- Remote Access Services requires the supported remote access adapters, which are a subset of the supported MPTS LAN adapters.
- A modem that supports speeds of 9600 bps or higher, if you plan to use Remote Access Services.
- An Internet-enabled LAN or a modem, if you plan to use the Internet.

# Hard Disk Space Requirements

Note: The requirements in this section are based on information available at publication time.

| Service | Number of Megabytes (MB) |
|---|---|
| Default installation: OS/2 base operating system plus default components | 120.0 |
| All optional OS/2 components | 180.0 |
| File and Print Sharing Services | 15.0 |
| TCP/IP Services | 30.0 |
| Remote Access Services | 6.0 |
| Netscape Communicator | 11.0 |
| Tivoli Management Agent | 1.5 |
| Personally Safe 'n' Sound | 7.2 |
| LDAP Services Toolkit | 4.2 |
| Adavanced Print Services | 54.0 |
| First Failure Support Technology (FFST) 1.2 | 0.1 |
| Online Books | 10.0 |
| Total (if all components and services are installed) | 439.0 |

# Keyboards Supported during Installation (1 of 2)

- For SBCS versions of OS/2 Warp Server for e-business, code page 850 is the only code page that is supported during the first phase of the installation process or if you start the system from utility diskettes. As a result, you must select one of the Latin-1 keyboards, even if you normally select a non-Latin-1 keyboard. You can still set the country code to any valid country. This setting may affect the default country and keyboard settings used later in the installation process, including those used by the Logical Volume Management Tool (LVM), and for command line processing when the system is booted from utility diskettes. However, later in the installation, you can specify your preferred country and keyboard settings.

# Keyboards Supported during Installation (2 of 2)

- These keyboards are supported during the first phase of OS/2 Warp Server for e-business installation

| Country Code | Country Name |
|---|---|
| be | Belgium |
| br | Brazil |
| cf | Canadian French |
| dk | Denmark |
| fr | France |
| gr | Germany |
| it | Italy |
| la | Latin America |
| nl | Netherlands |
| no | Norway |
| sf | Swiss French |
| sg | Swiss German |
| sp | Spanish |
| su | Finland |
| sv | Sweden |
| uk | United Kingdom |
| us | United States |
| ux | US International |

# Display and Graphics Adapter Considerations

http://service.software.ibm.com/os2ddpak/index.htm

- If you find no specific driver for your graphics adapter, consider installing the *Generic VESA Unaccelerated GRADD (GENGRADD)* to obtain Super VGA resolutions and color support.

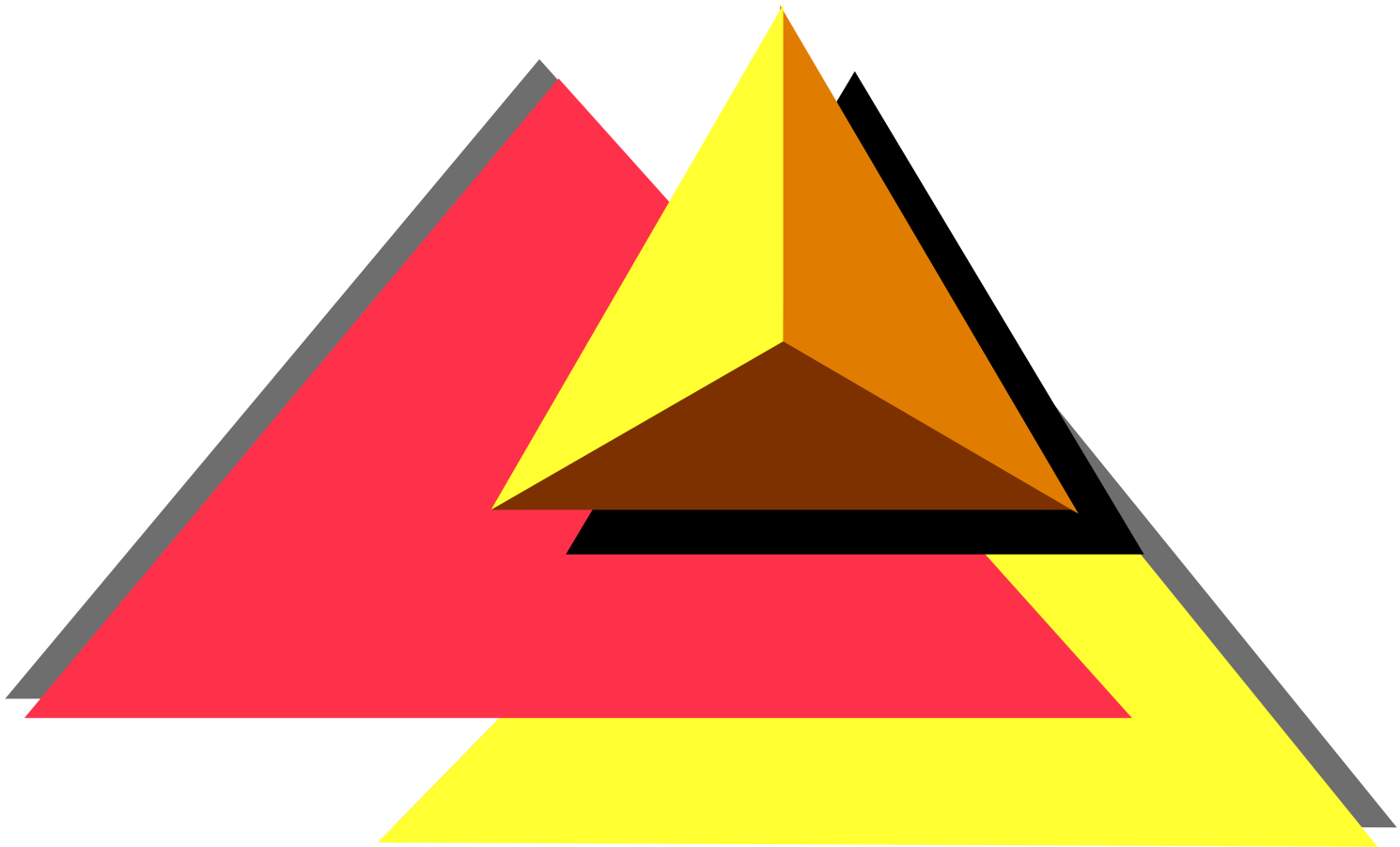
# Installation Strategy Discussion

- Review current layout of the servers on the network and the network functions performed by each server
- Determine if all servers meet hardware requirements to support installation of OS/2 Warp Server for e-business and additional functions
- Determine products and services currently installed
- Determine availability and impact of taking existing server down
- Determine volumes, partitions, and file systems
- Plan for PD/PSI requirements
- Identify any existing systems to be migrated
- Identify and gather third-party hardware support diskettes, adapter device drivers, and peripheral device drivers (if necessary)
- Determine overall installation sequence and strategy
- CHKINST
- VCU

# Unit Summary

You should now be able to:

- Determine OS/2 Warp Server for e-business features to be installed
- Select desired features from list of available features
- Determine if the requirements for all desired features have been met
- Anticipate and resolve any potential ramifications of OS/2 components that will be deleted during installation (OpenDoc, VoiceType, Ask PSP, and so forth)
- Create a final list of OS/2 Warp Server for e-business features to be installed and their requirements
- Determine other products to install
- Develop an Installation Strategy
- Identify existing systems to be migrated
- Identify and gather third-party hardware support diskettes, adapter device drivers, and peripheral device drivers (if necessary)
- Determine overall installation sequence and strategy



# Installing and Configuring OS/2 Warp Server for e-business

# Objectives

After completing this unit, you should be able to:

- Update installation diskettes
- Install, remove and configure boot manager
- Install and format a bootable OS/2 Warp Server for e-business volume
- Install and configure server components
- Create and name new partitions
- Create, modify, and format volumes
- Configure the server to function in the context of the larger network
- Back up and print critical files
- Create emergency boot diskettes
- Install Lotus Domino
- Install IBM WebSphere
- Test the network installation and configuration
- Document the network installation and configuration

# Server Packaging

## Server

- 14 NLV packages

## Server Upgrade

- 14 NLV packages

### One Language

1

Server:

- OS/2 base and File Systems
- UNI and SMP Kernels
- LAN Server
- Neighborhood Browser Enabler
- MPTS
- TCP/IP and DHCP/DDNS
- SSL 3.2
- LAN Adapter (Subset)
- 40-bit Encryption
- Printer Drivers (Subset)
- Device Drivers (Subset)
- REXX
- PPP Server
- PSnS Management
- Tivoli Management Agent
- Java Virtual Machine 1.1.7
- Netscape Communicator*
- HPFS386 "Fix Pak"
- ART Registration
- Online Library

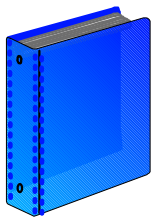
### One Language

3

Boot Diskettes

### One Language

1



Quick Beginnings

### All Languages

2

Client Connect Pak (OS/2 Warp 4, Windows 9X, Windows NT 4.0, and DOS/Windows 3.1 Clients)

- Tivoli Management Agent
- Feature Install
- Network Transport Services
- TCP/IP and Dynamic Services
- File/print services
- Logon Client
- Remote Access
- HTML Browser*
- Java runtime

See Client Connect Pak Matrix for details

### One Language

1

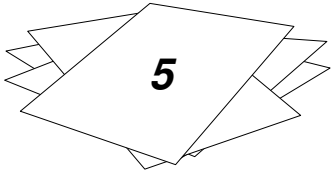
Netfinity 5.2

### 14 Languages

1

- IBM WebSphere Application Server 1.1
- Lotus Domino Go Webserver 4.6.2.6

### Ts and Cs



# Server Packaging

## HPFS386 Feature

- 14 NLV packages

### One Language

1

HPFS386 Proof of License

Ts & Cs

5

## Security Feature

- Single package

### 14 Languages

1

- MPTS
- SSL 3.2 (40/56/128-bit encryption)
- IPSEC (40/56-bit encryption)
- 128-bit Netscape Communicator*
- 128-bit Lotus Domino Go

Ts & Cs

5

Ts & Cs

5

IPLA (16 languages)
License Information (16 languages)
Service and Support Statement (one language)
Server Proof of Entitlement (one language)
User Access Proof of Entitlement (one language)

**Available on Internet**

- DD Pak
- Printer Pak
- LAN Adapters
- Developer's Connection OS/2 Toolkit

# Hard Disk Requirements

| | |
|---|---|
| OS/2 Warp Base Operating System -- default installation | 96.7 MB |
| OS/2 Warp Base Operating System -- with all components | 156.0 MB |
| File and Print Sharing Services | 15.0 MB |
| TCP/IP Services | 30.0 MB |
| Remote Access Services | 5.9 MB |
| Netscape Communicator | 11.0 MB |
| Tivoli Management Agent | 1.5 MB |
| Personally Safe 'n Sound (Backup and Restore) | 7.2 MB |
| Lightweight Directory Access Protocol Toolkit | 4.2 MB |
| Advanced Print Services | 54.0 MB |
| Multiple Protocol Transport Services | 16.0 MB |
| First Failure Support Technology | 0.1 MB |
| Online Books | 10.0 MB |

# ClientPak (2 CD-ROMs)

- Client Connect Pak
- (OS/2 Warp 4, Windows 9X,
- Windows NT 4.0, and
- DOS/Windows 3.1 Clients)
- Tivoli Management Agent
- Feature Install
- Network Transport Services
- TCP/IP and Dynamic Services
- File/print services
- Logon Client
- Remote Access
- HTML Browser*
- Java runtime

# Client Connect Pak Matrix

| | OS/2 Warp 4 | Windows 95 | Windows NT 4.0 | DOS/Win 3.1 |
|---|---|---|---|---|
| **System Management** | Tivoli Agent<br>CD 2 | N/A | N/A | N/A |
| **Feature Install** | OS/2 Feature<br>CD 1 | N/A | N/A | N/A |
| **Network Services** | MPTS<br><br>CD 1 | Included in operating system | Included in operating system | LAN Support Program<br>CD 2 |
| **IP Services** | TCP/IP 4.2.1<br>CD 1 | Dynamic IP Client<br>CD 2 | Dynamic IP Client<br>CD 2 | DOS LAN Sevices<br>CD 2 |
| **File and Print Services** | OS/2 File and Print Cilent<br>CD 2 | Included in operating system | Included in operating system | DOS LAN Services<br>CD 2 |
| **Logon Services** | OS/2 File and Print Client<br>CD 2 | Network Client for Windows 95<br>CD 2 | Primary Logon Client<br>CD 2 | DOS LAN Services<br>CD 2 |
| **Remote Access** | LAN Distance<br>CD 2 | Included in operating system | Incuded in operating system | N/A |
| **Browser** | Netscape 4.04<br>CD 1 | Included in operating system | Included in operating system | N/A |
| **Java** | Java Dev Toolkit<br>CD 1 | Java Dev. Toolkit<br>CD 2 | Included in operating system | N/A |

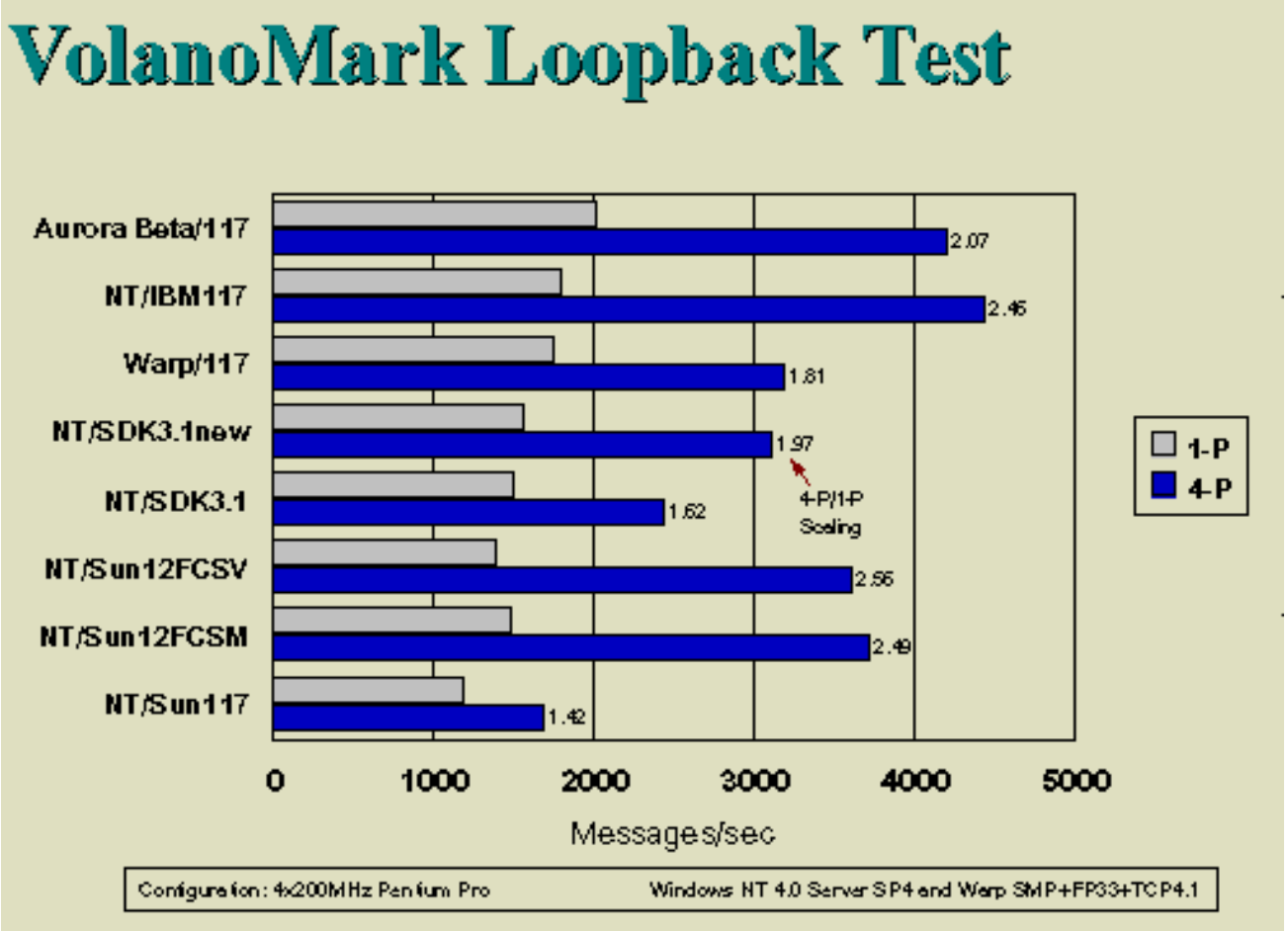
# Year 2000 and Euro

**OS/2 Warp Server for e-business is fully enabled to support upcoming Year 2000 (Y2K) and euro currency transistions**

**Support for the euro sign as the currency symbol is available when you specify country information during the installation process**


# Java Support

## Java 1.17 Shipped with OS/2 Warp Server for e-business



# JFS Utilities

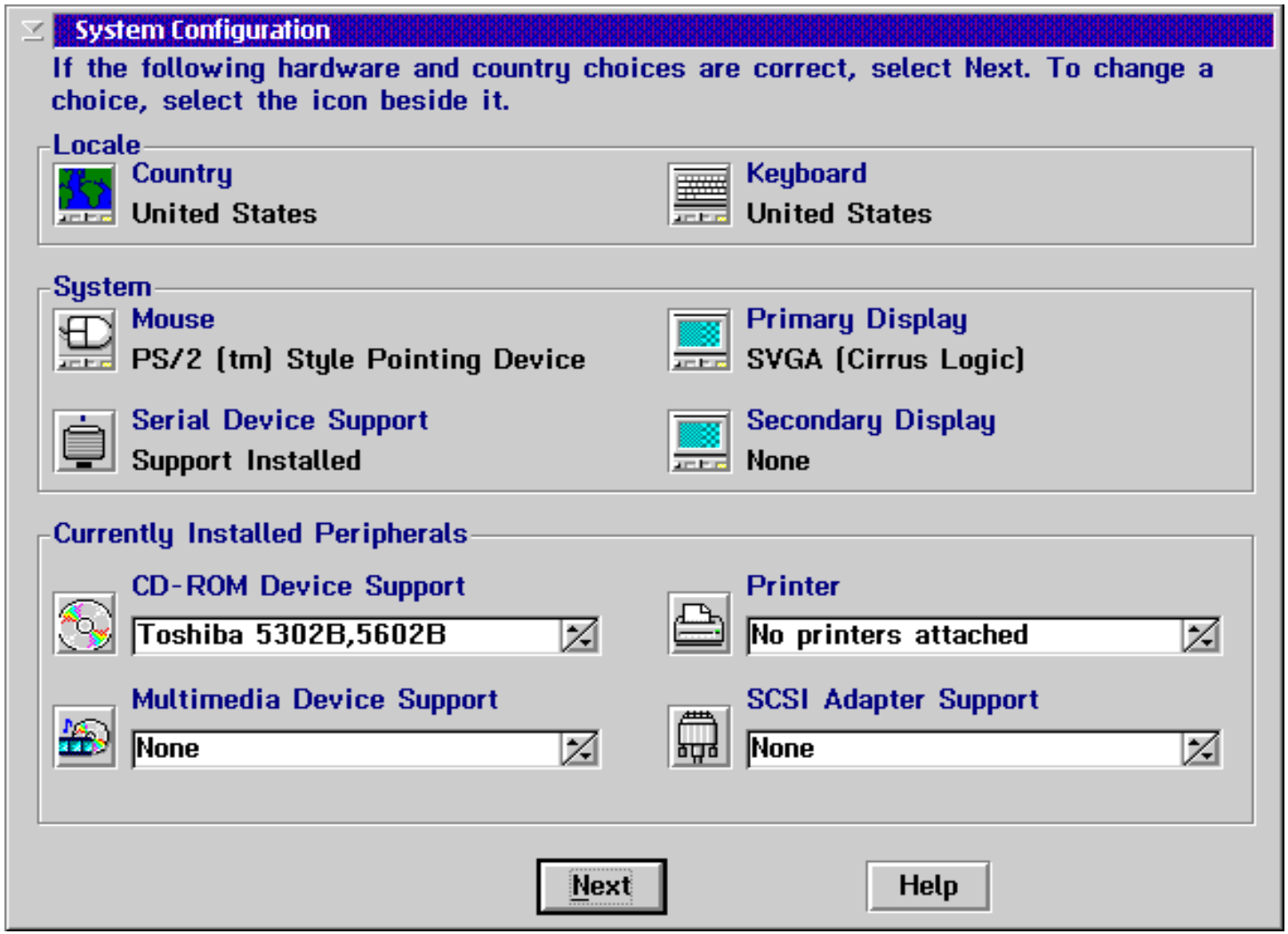
- Format
- Chkdsk
- Defrag
- Extend

# LVM (Replaces fdisk)

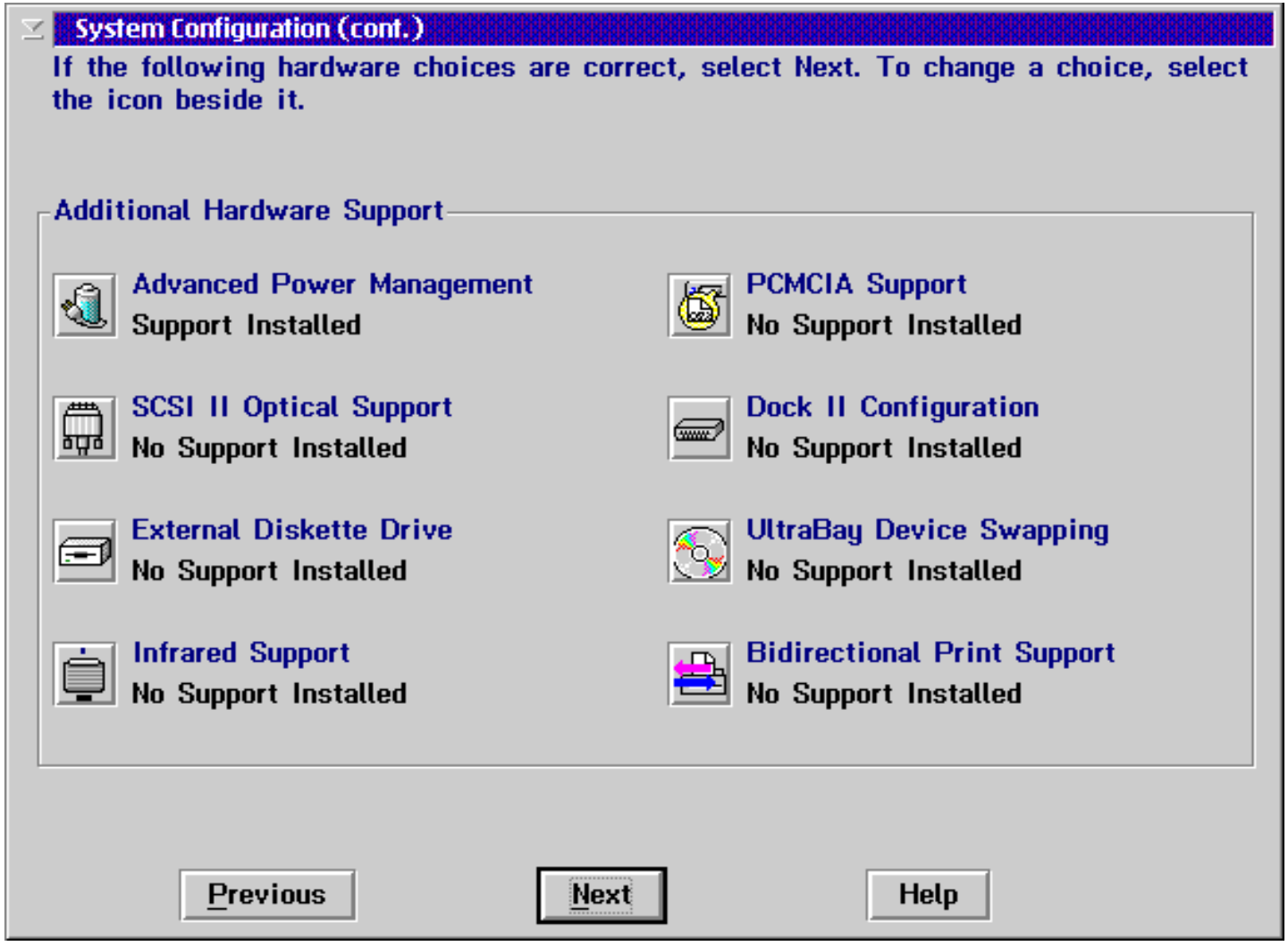
- Create a partition
- Delete a partition
- Bootable volumes
- Non-bootable volumes
- Changing a drive letter assigned to a volume
- Expanding a volume
- Set or change a volume name
- Delete a volume
- Hide a volume from OS/2
- Unhide a volume from OS/2

Refer to Chapter 3 of the *Network Administrator's Guide* and Chapter 5 of *Quick Beginnings: Installing OS/2 Warp Server for e-business*

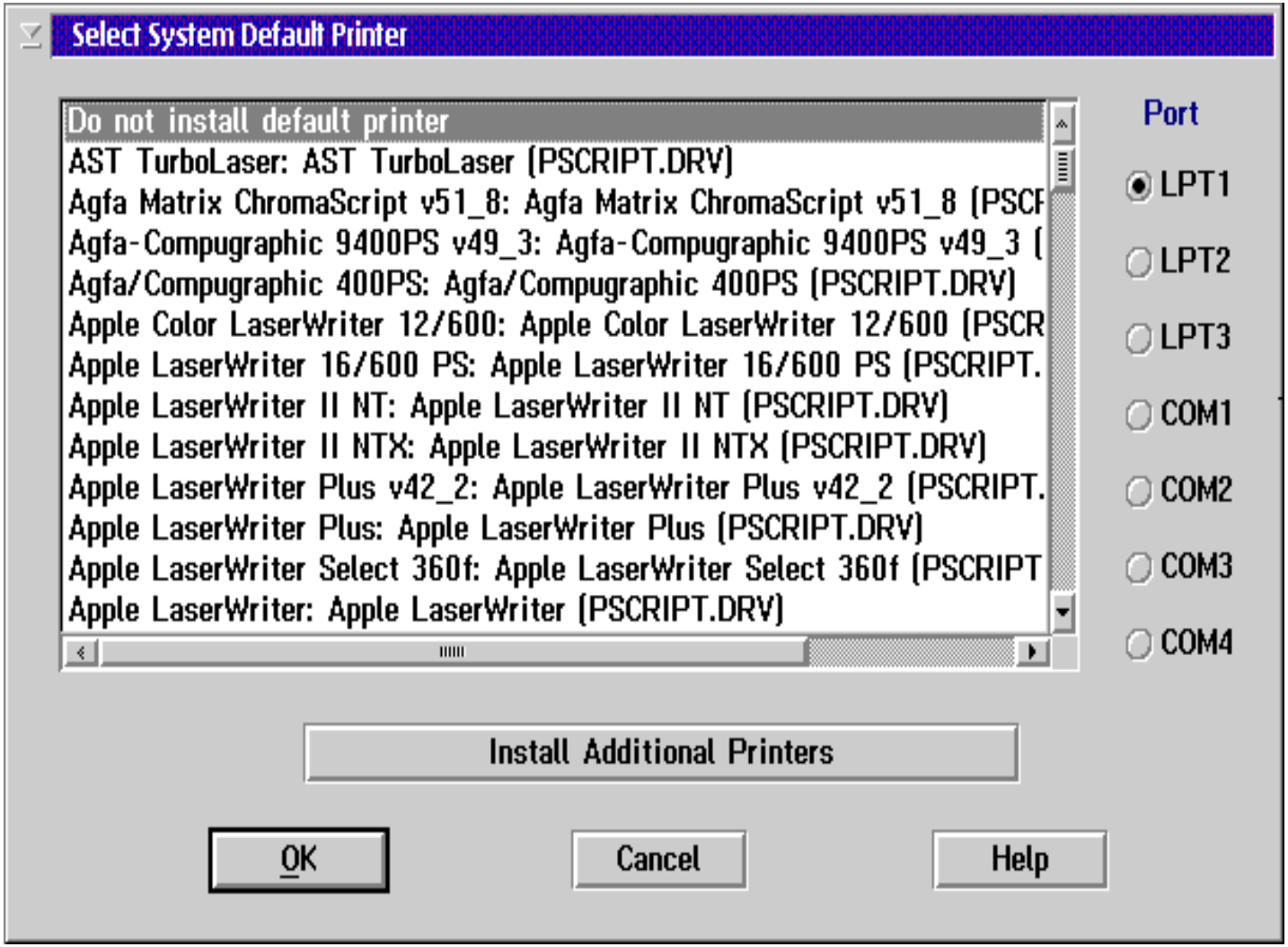
# System Configuration (1 of 2)



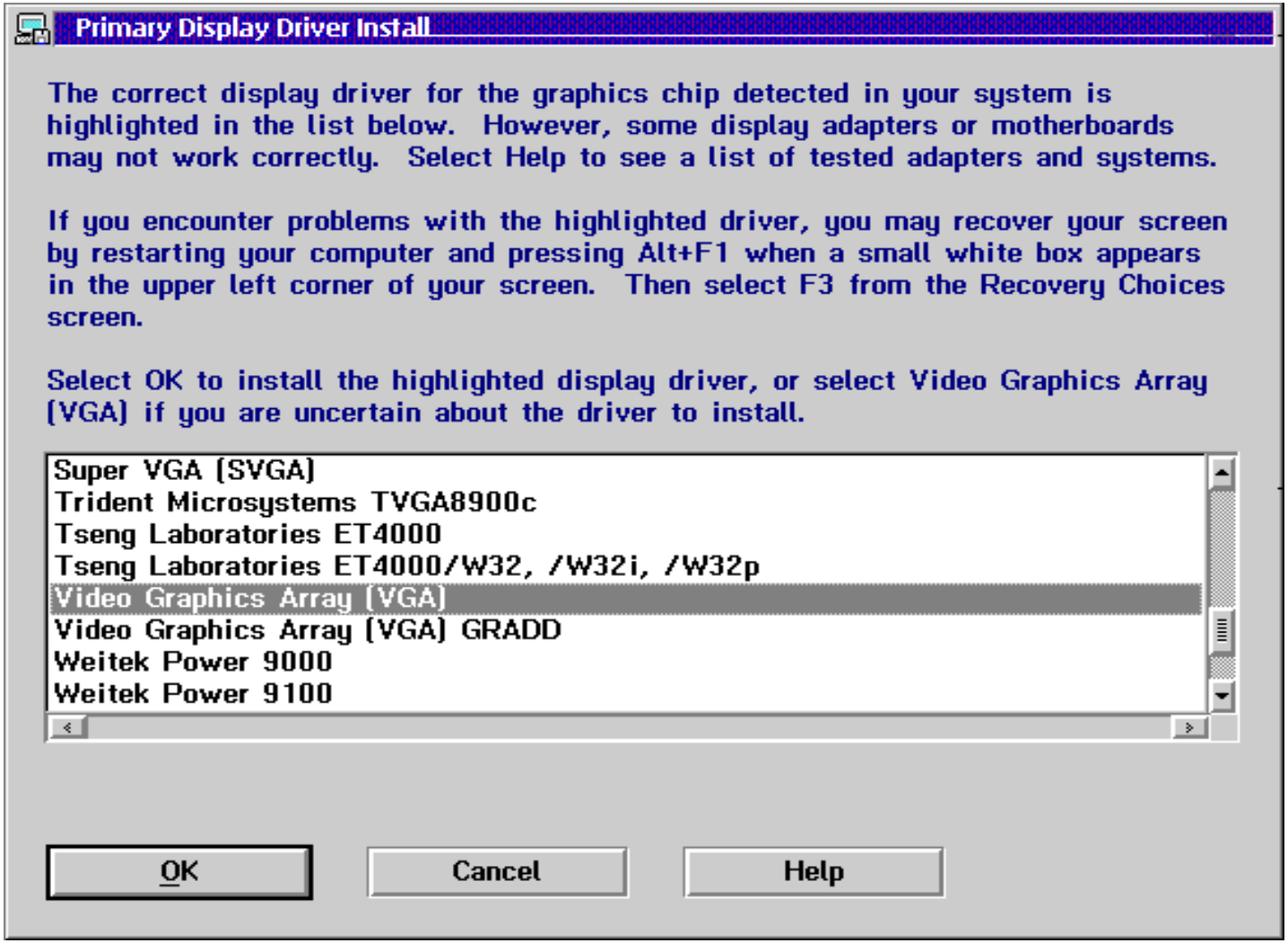
# System Configuration (2 of 2)



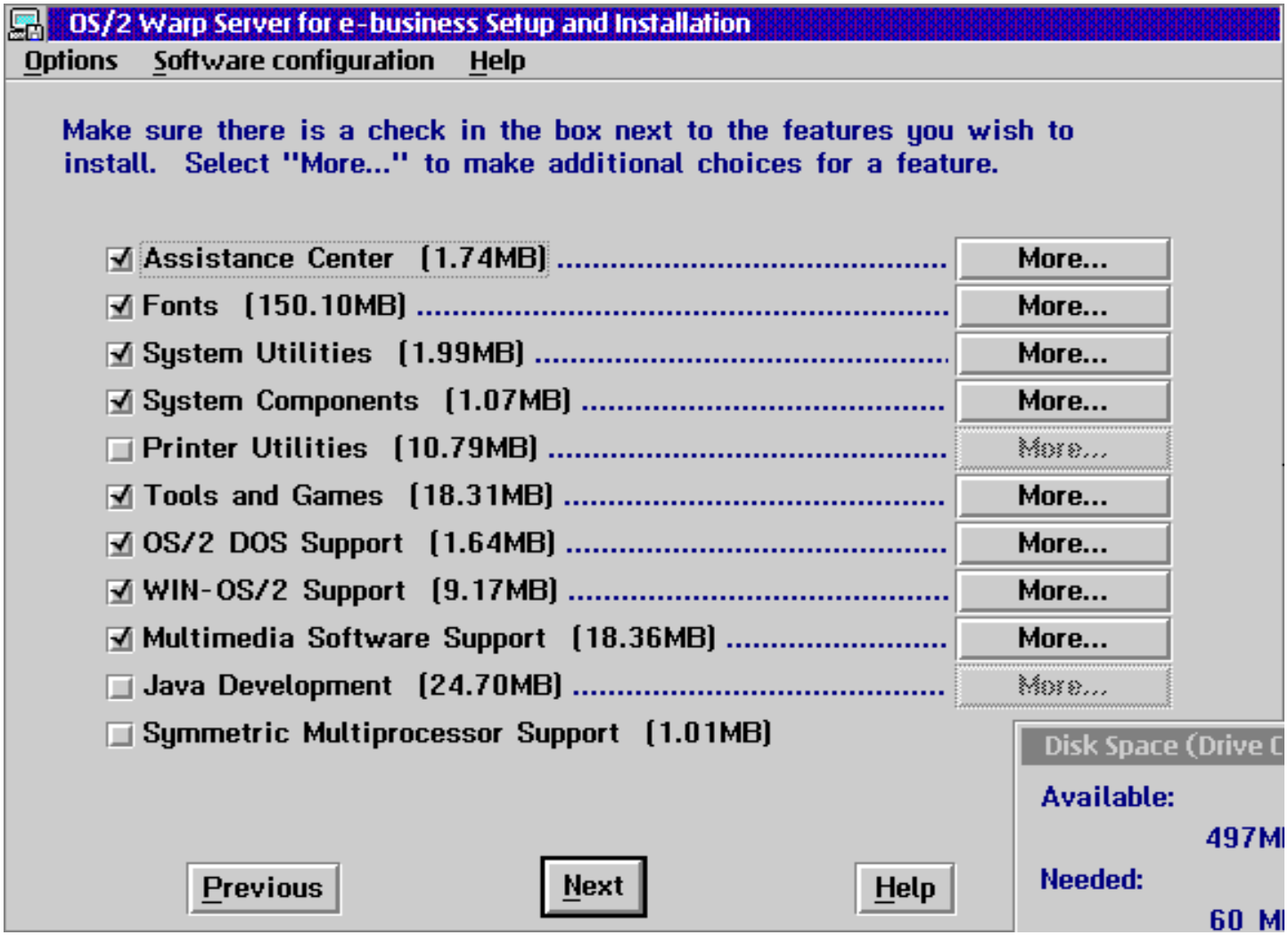
# Default Printer



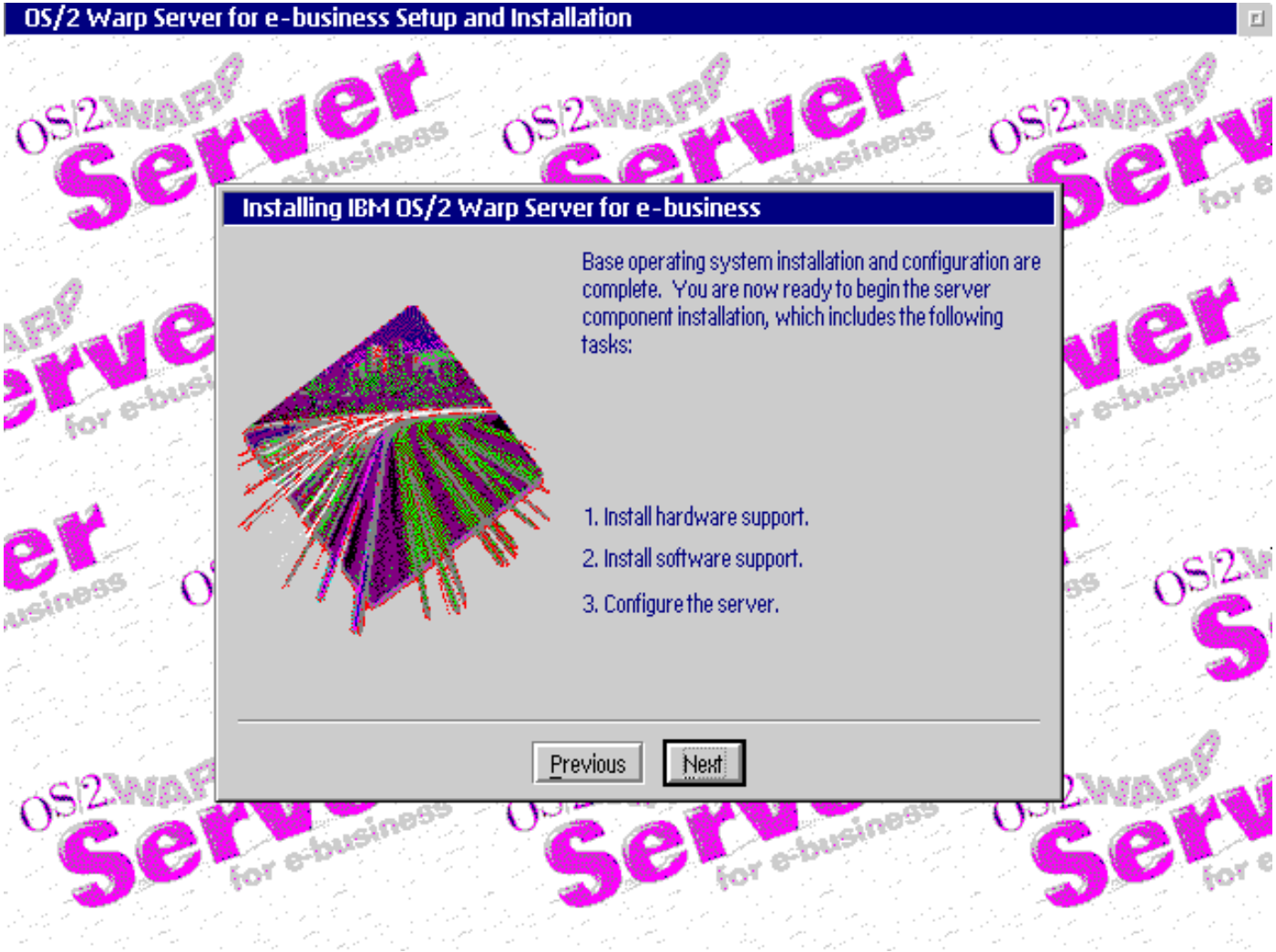
# Primary Display Drivers



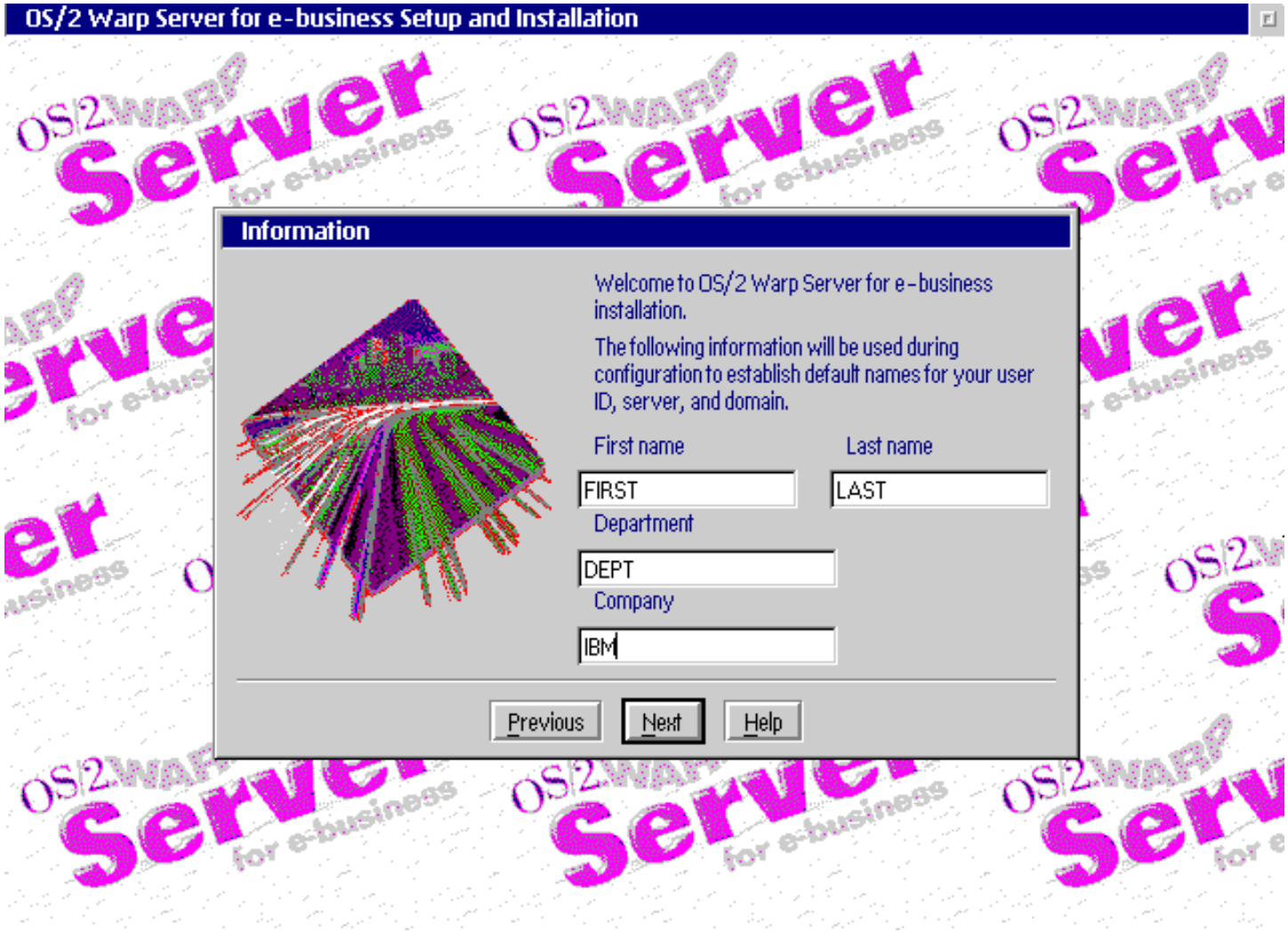
# Setup and Installation (1 of 2)



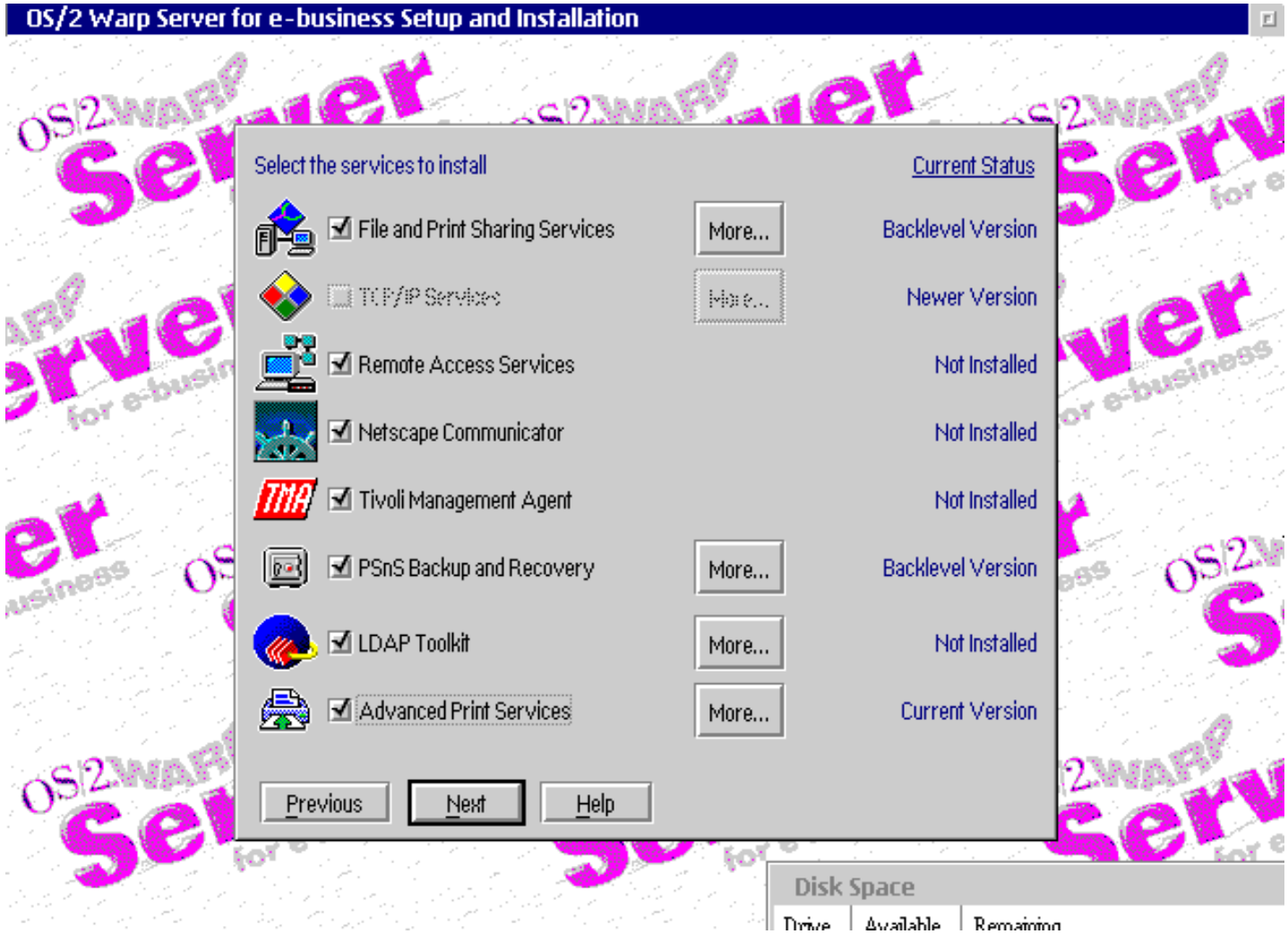
# Setup and Installation (2 of 2)



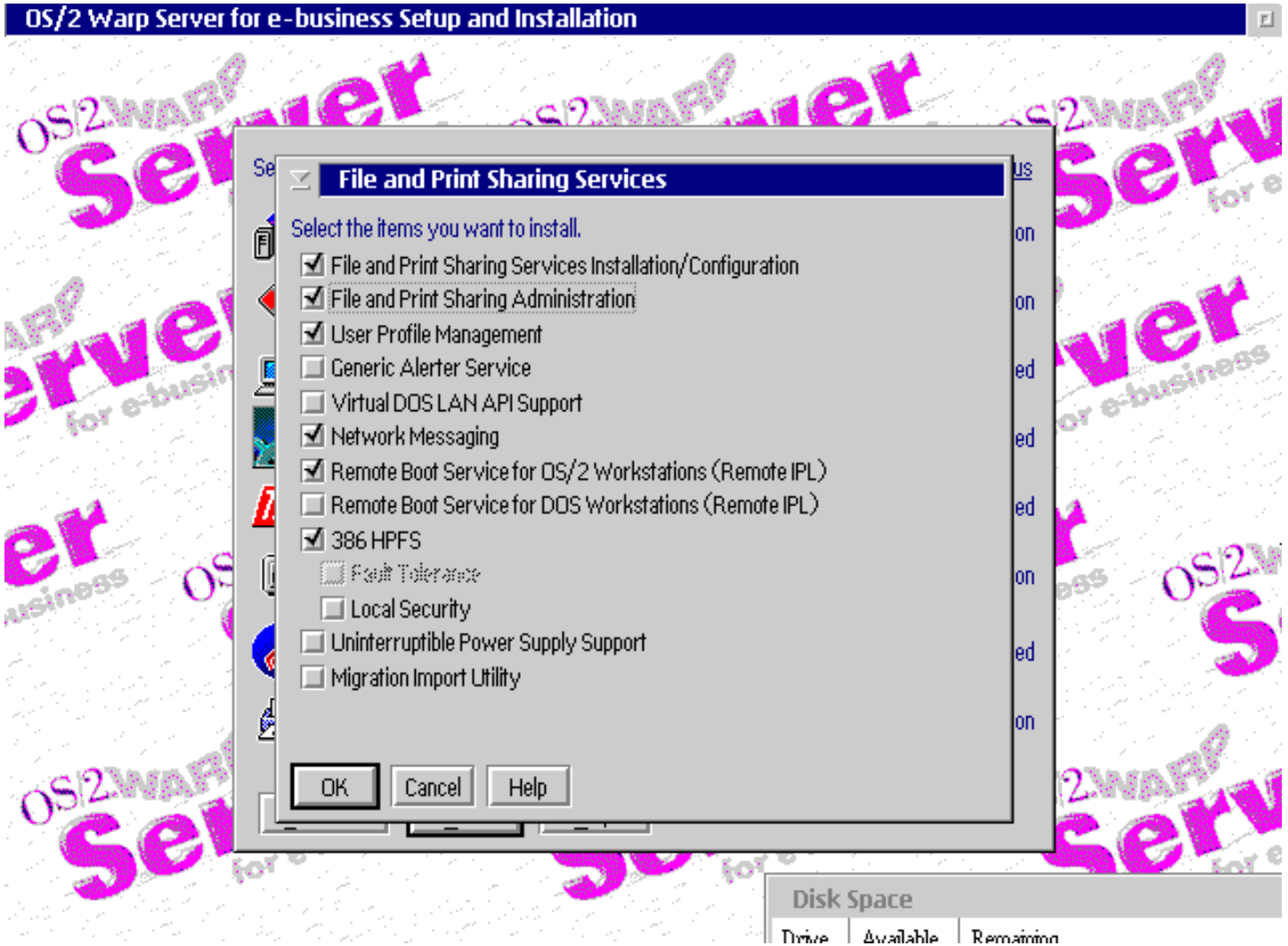
# Setup and Installation - Information



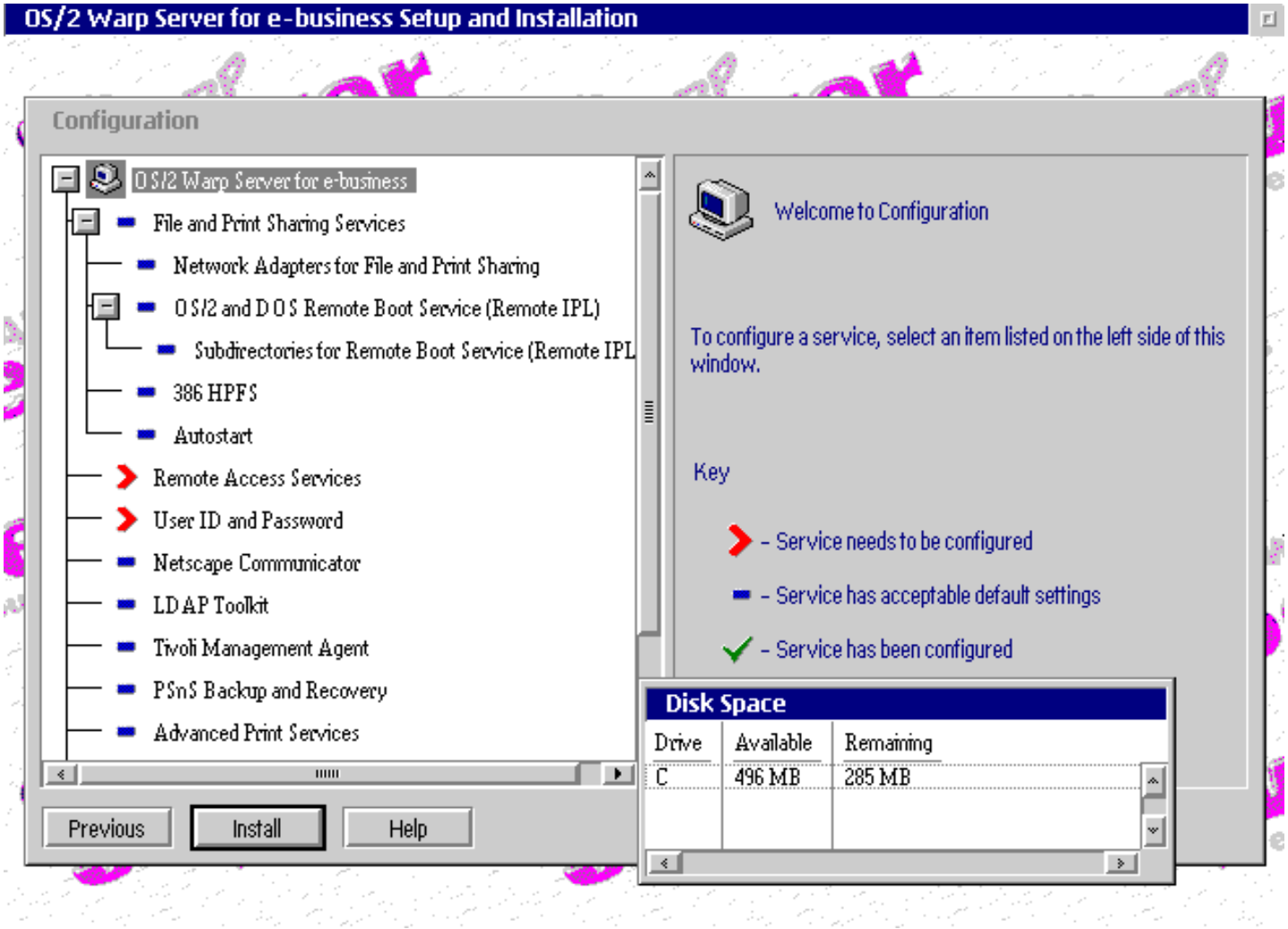
# Select Services



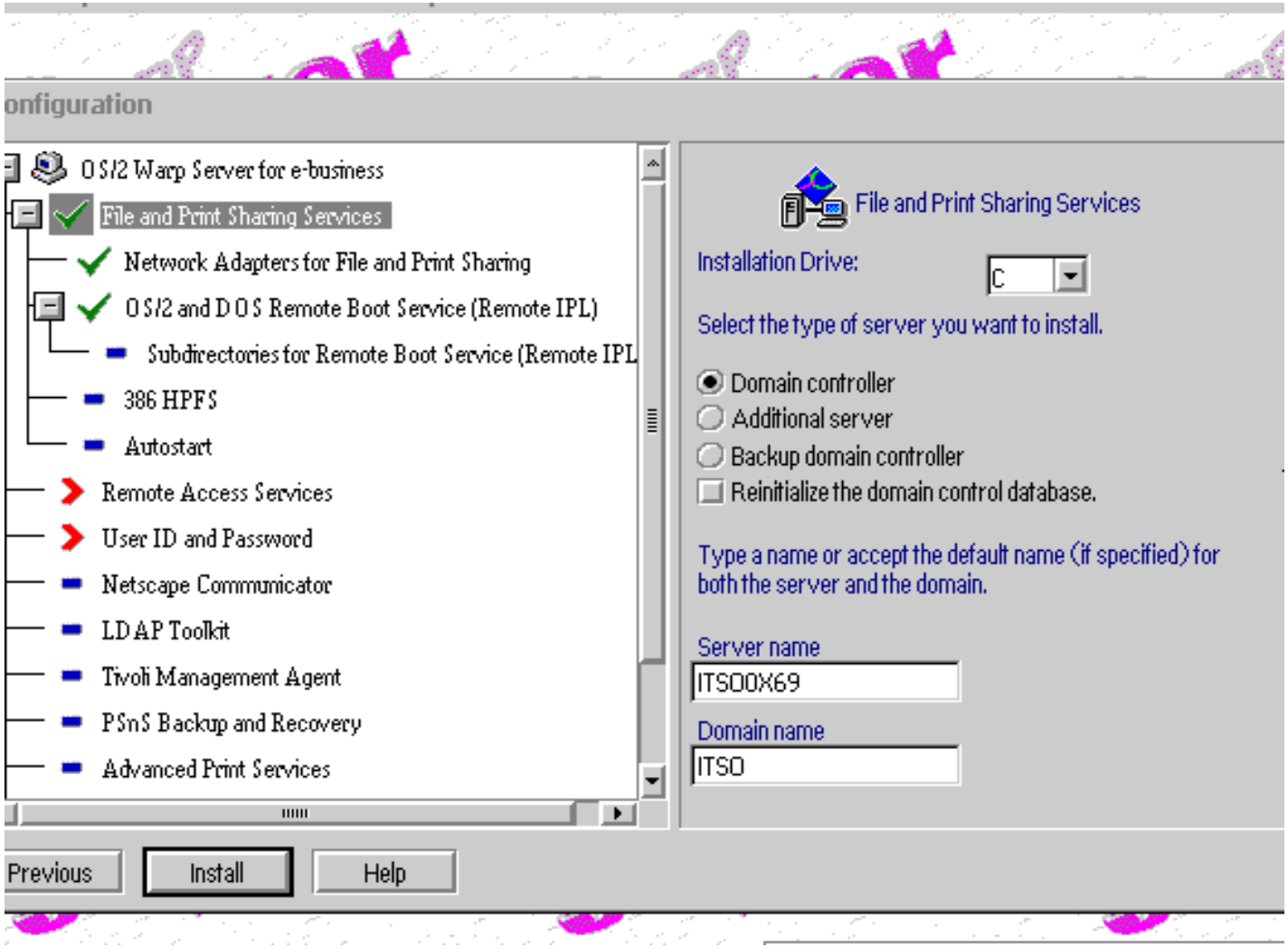
# File and Print



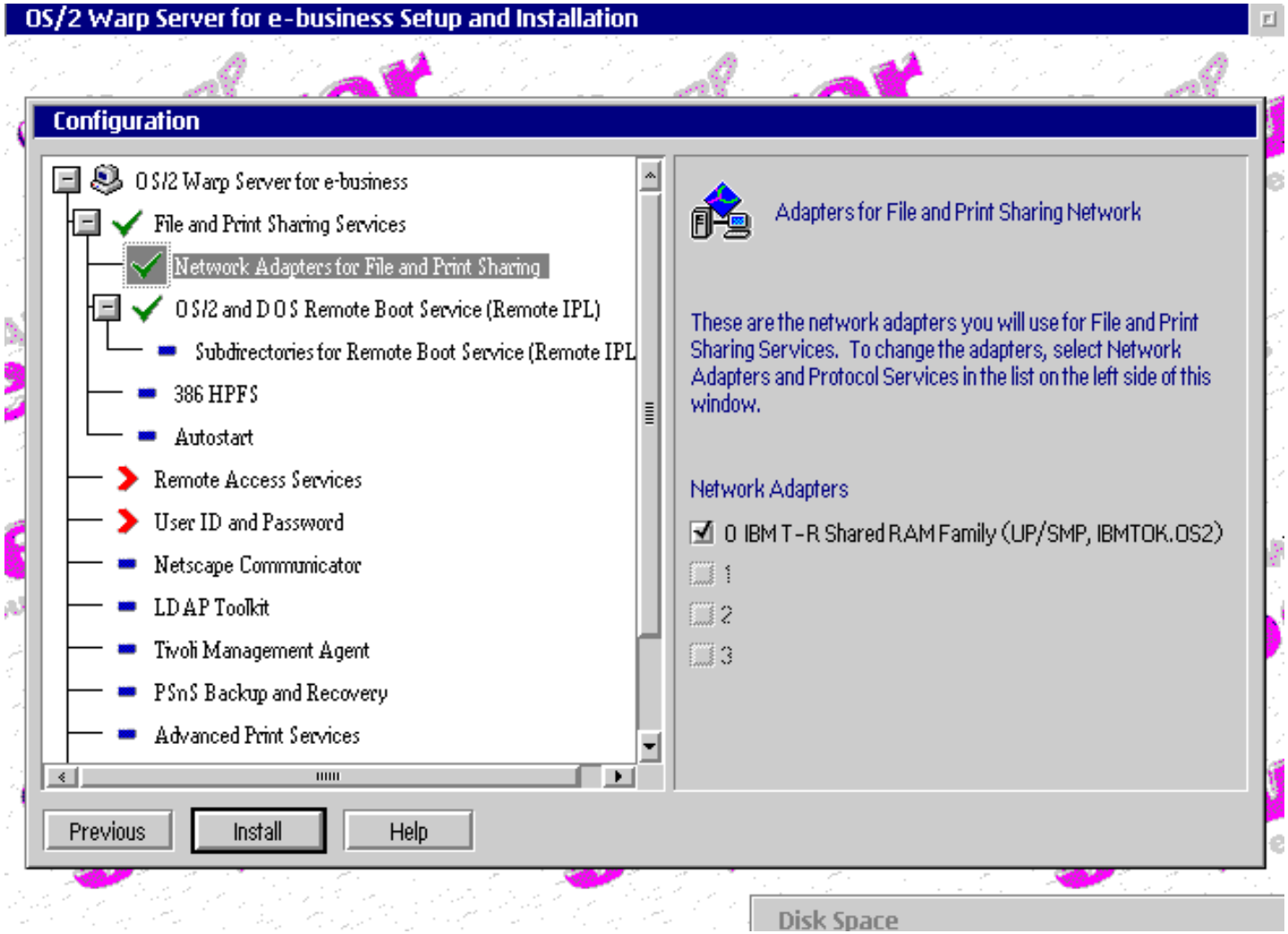
# Configuration



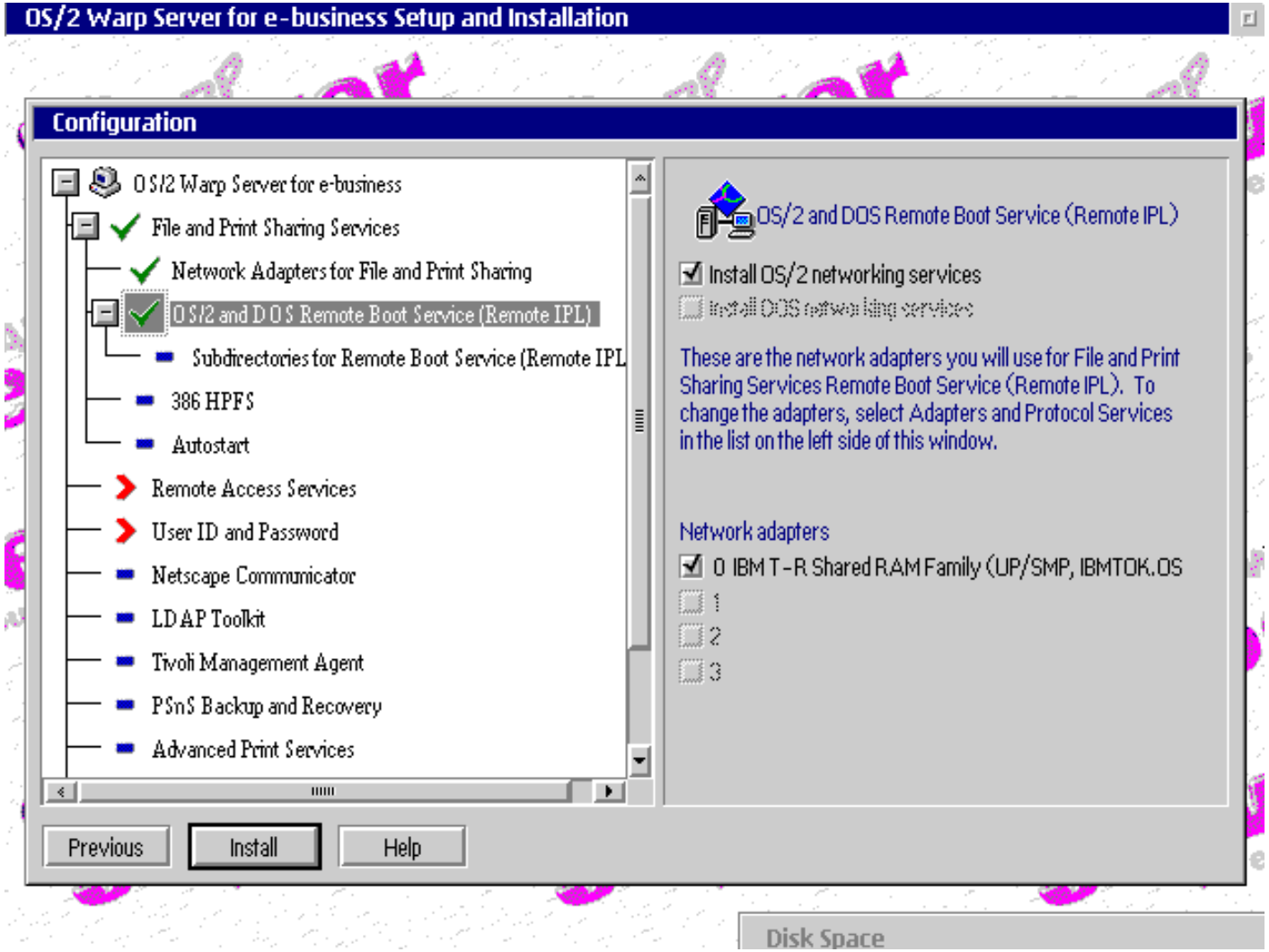
# File and Print



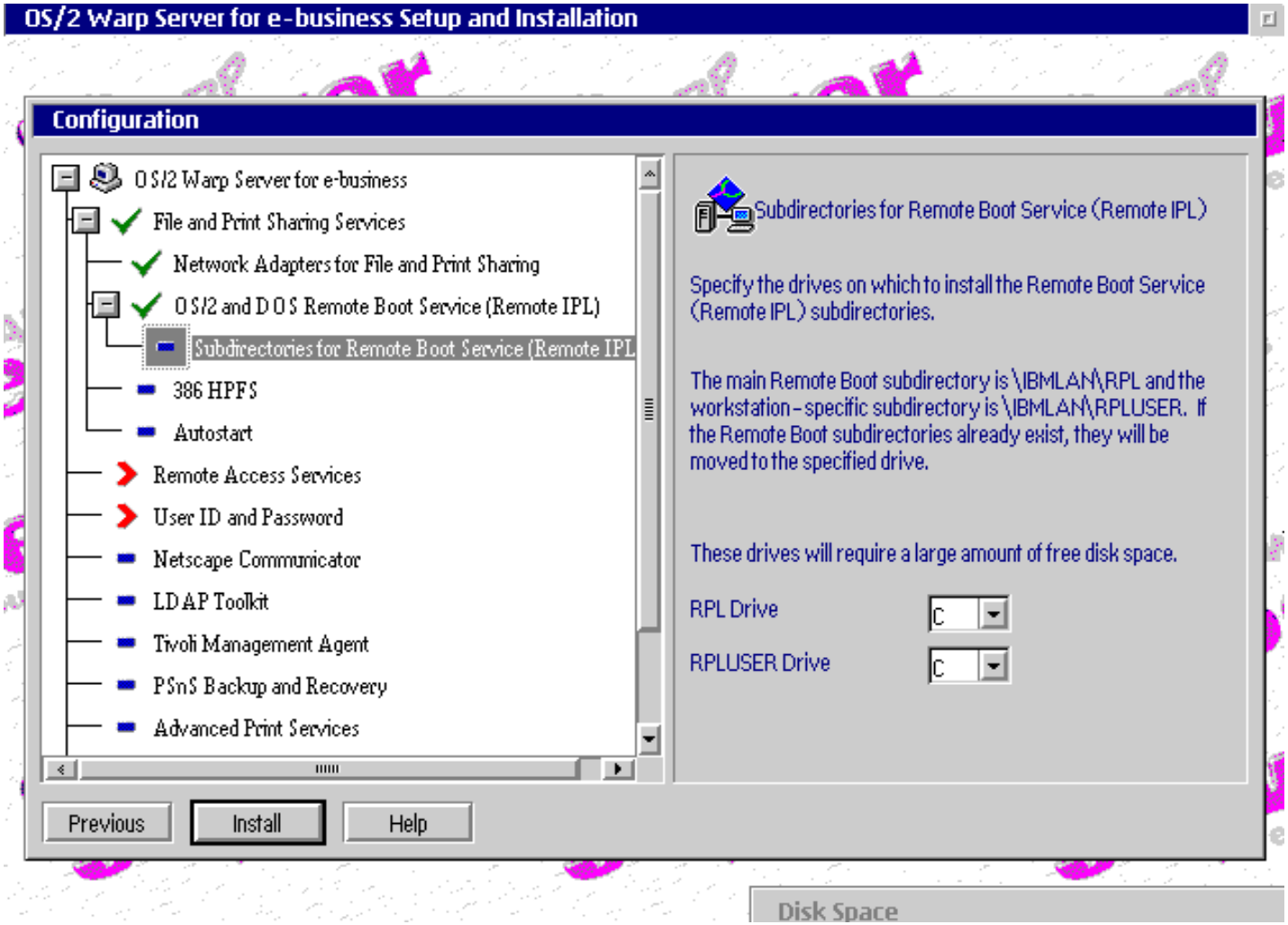
# Network Adapters



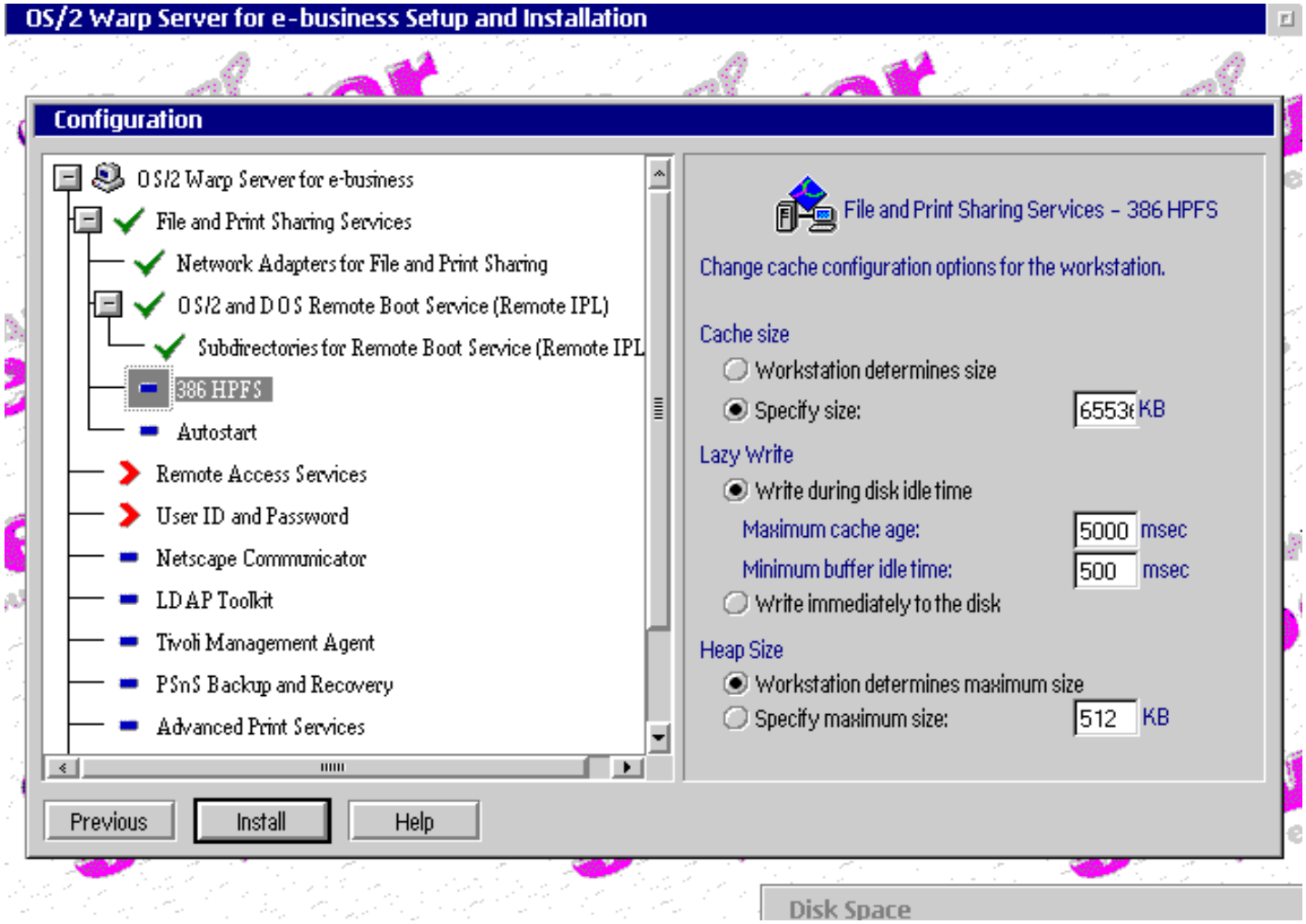
# Remote IPL (1 of 2)



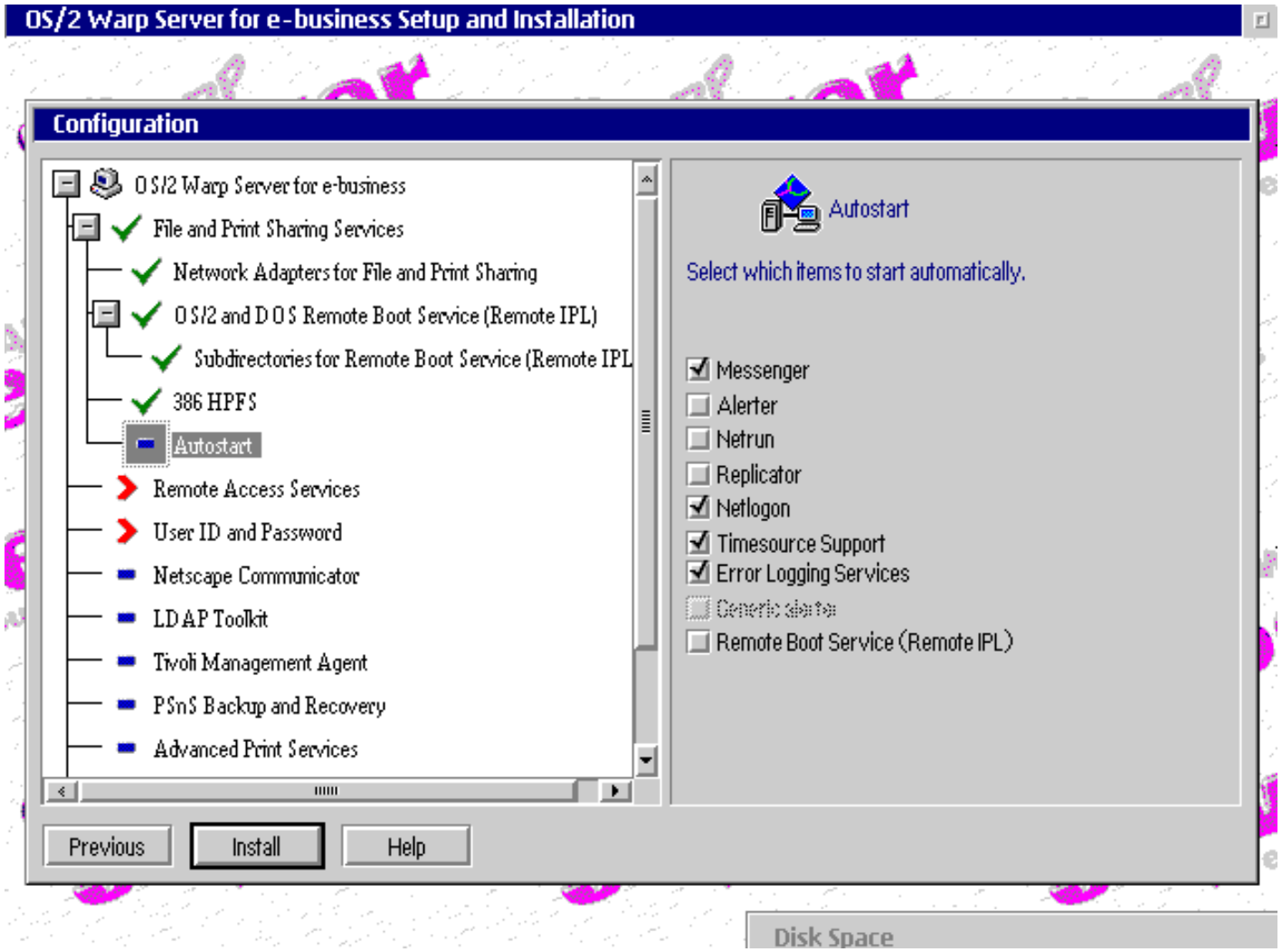
# Remote IPL (2 of 2)



# 386HPFS


OS/2 Warp Server for e-business Setup and Installation
Configuration
OS/2 Warp Server for e-business
File and Print Sharing Services
Network Adapters for File and Print Sharing
OS/2 and DOS Remote Boot Service (Remote IPL)
Subdirectories for Remote Boot Service (Remote IPL
386 HPFS
Autostart
Remote Access Services
User ID and Password
Netscape Communicator
LDAP Toolkit
Tivoli Management Agent
PSnS Backup and Recovery
Advanced Print Services
File and Print Sharing Services - 386 HPFS
Change cache configuration options for the workstation.
Cache size
Workstation determines size
Specify size:
6553
KB
Lazy Write
Write during disk idle time
Maximum cache age:
5000
msec
Minimum buffer idle time:
500
msec
Write immediately to the disk
Heap Size
Workstation determines maximum size
Specify maximum size:
512
KB
Previous
Install
Help
Disk Space

# Autostart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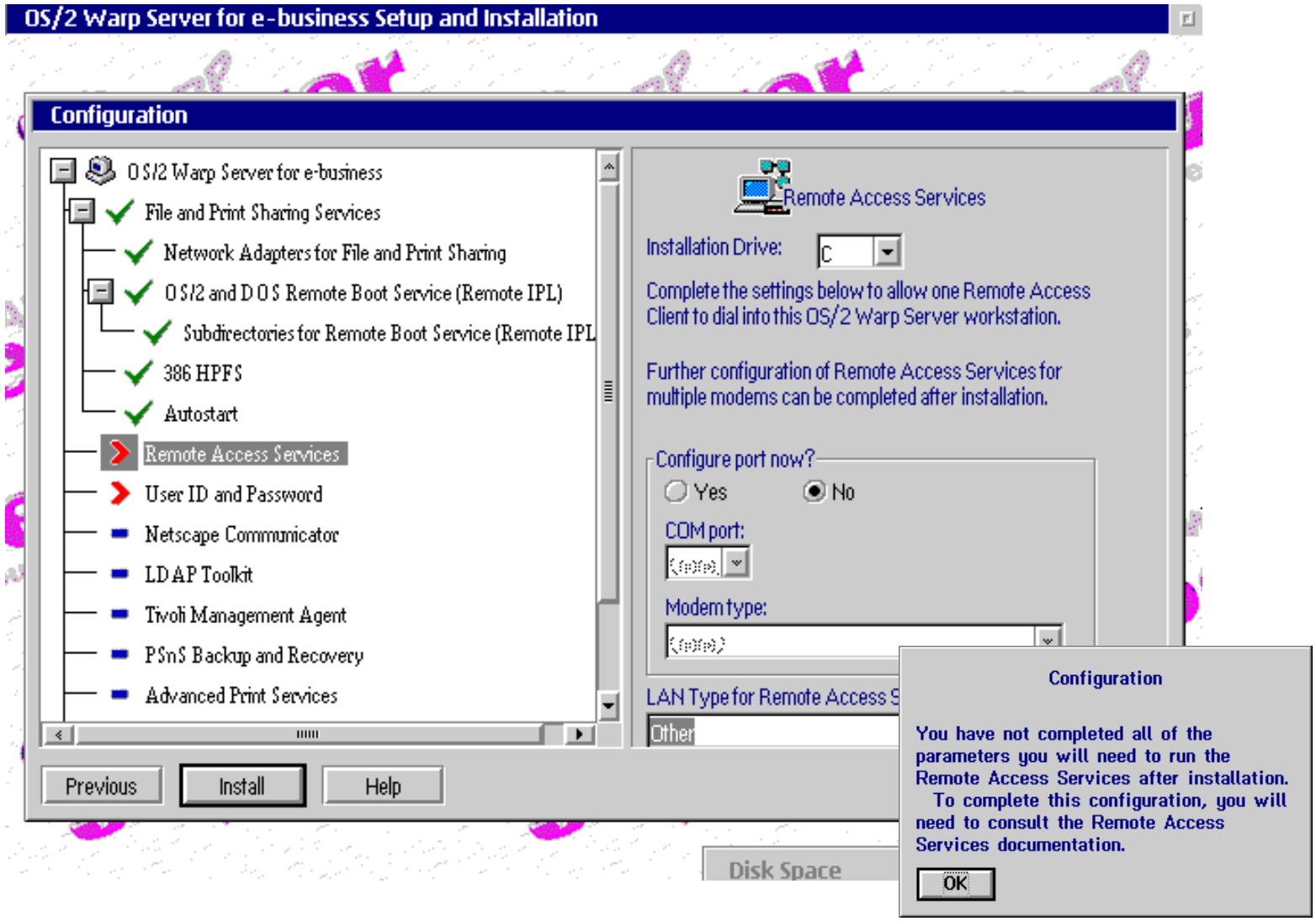
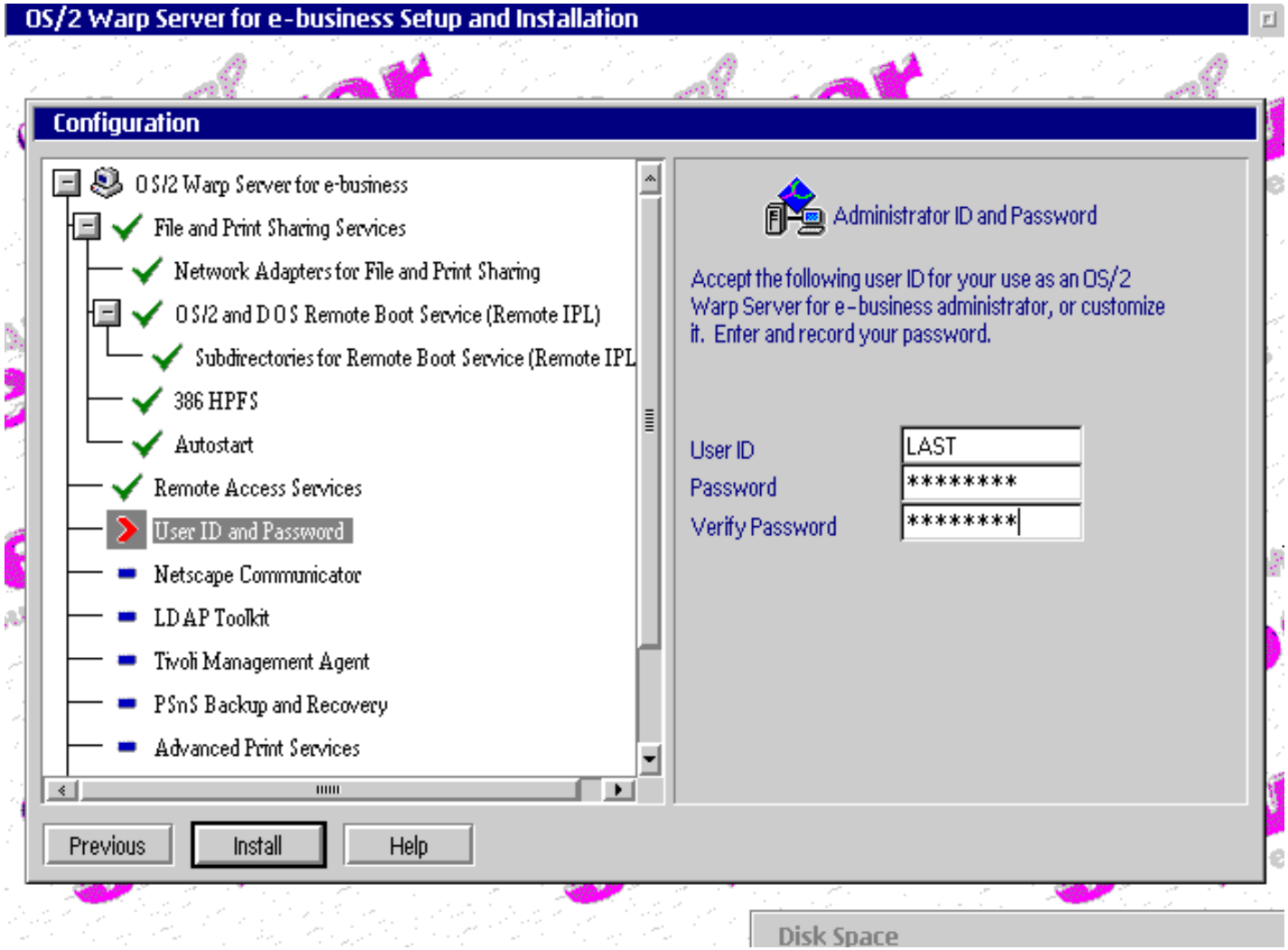
PSnS Backup and Recovery
Advanced Print Services
Autostart
Select which items to start automatically.
Messenger
Alerter
Netrun
Replicator
Netlogon
Timesource Support
Error Logging Services
Remote Boot Service (Remote IPL)
Previous
Install
Help
Disk Space

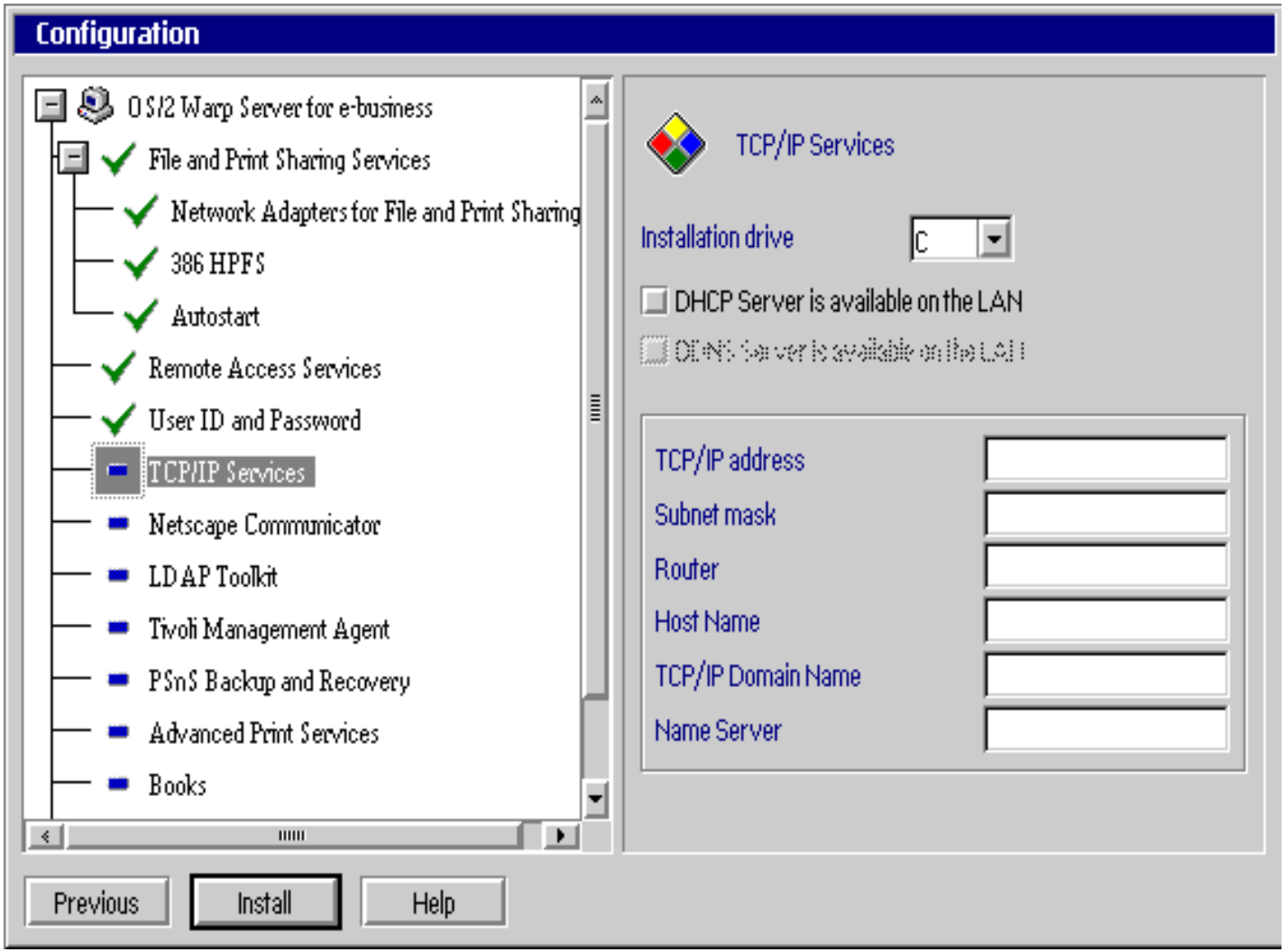
# Remote Access Services



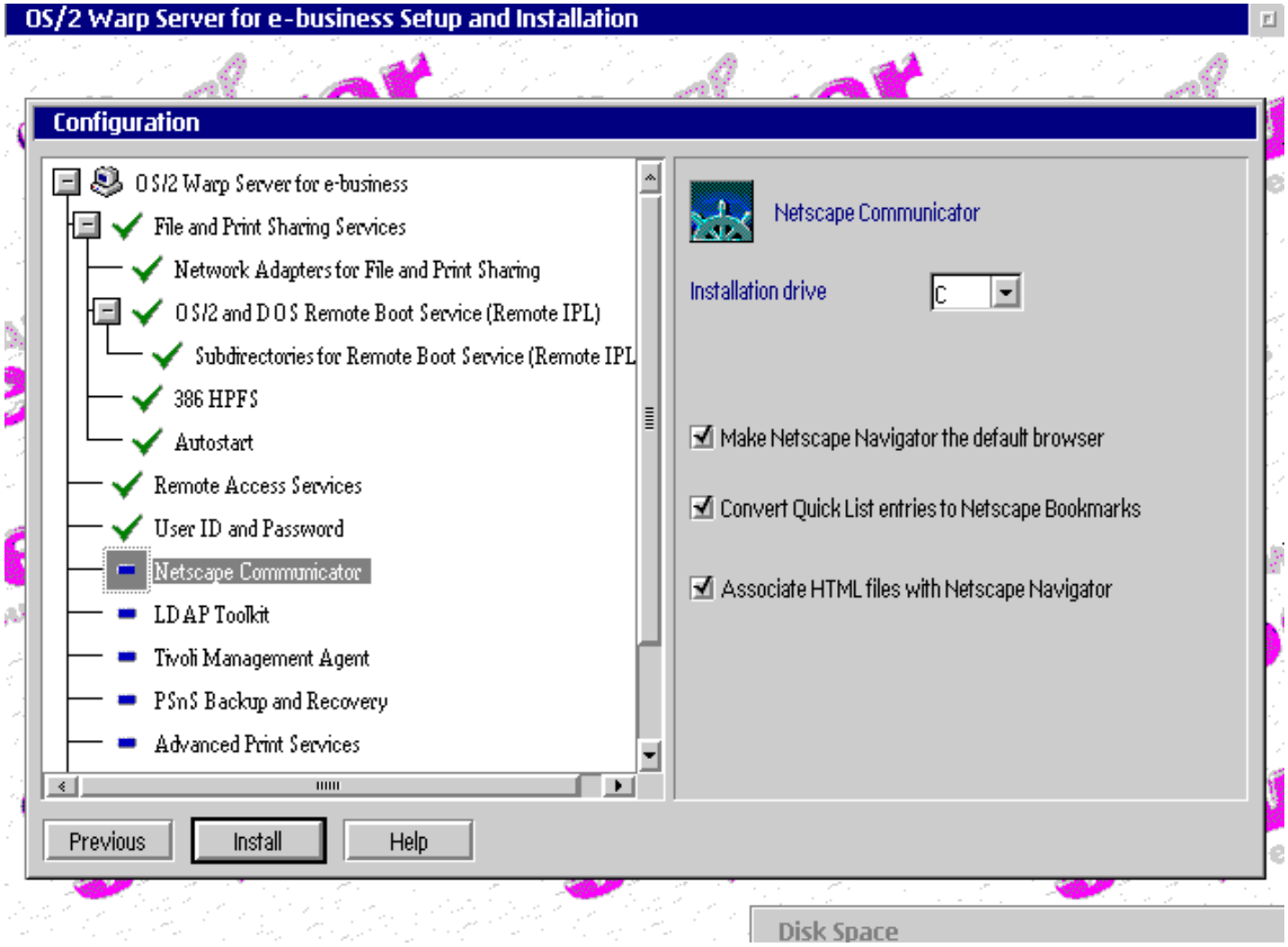
# Administrator ID / Password



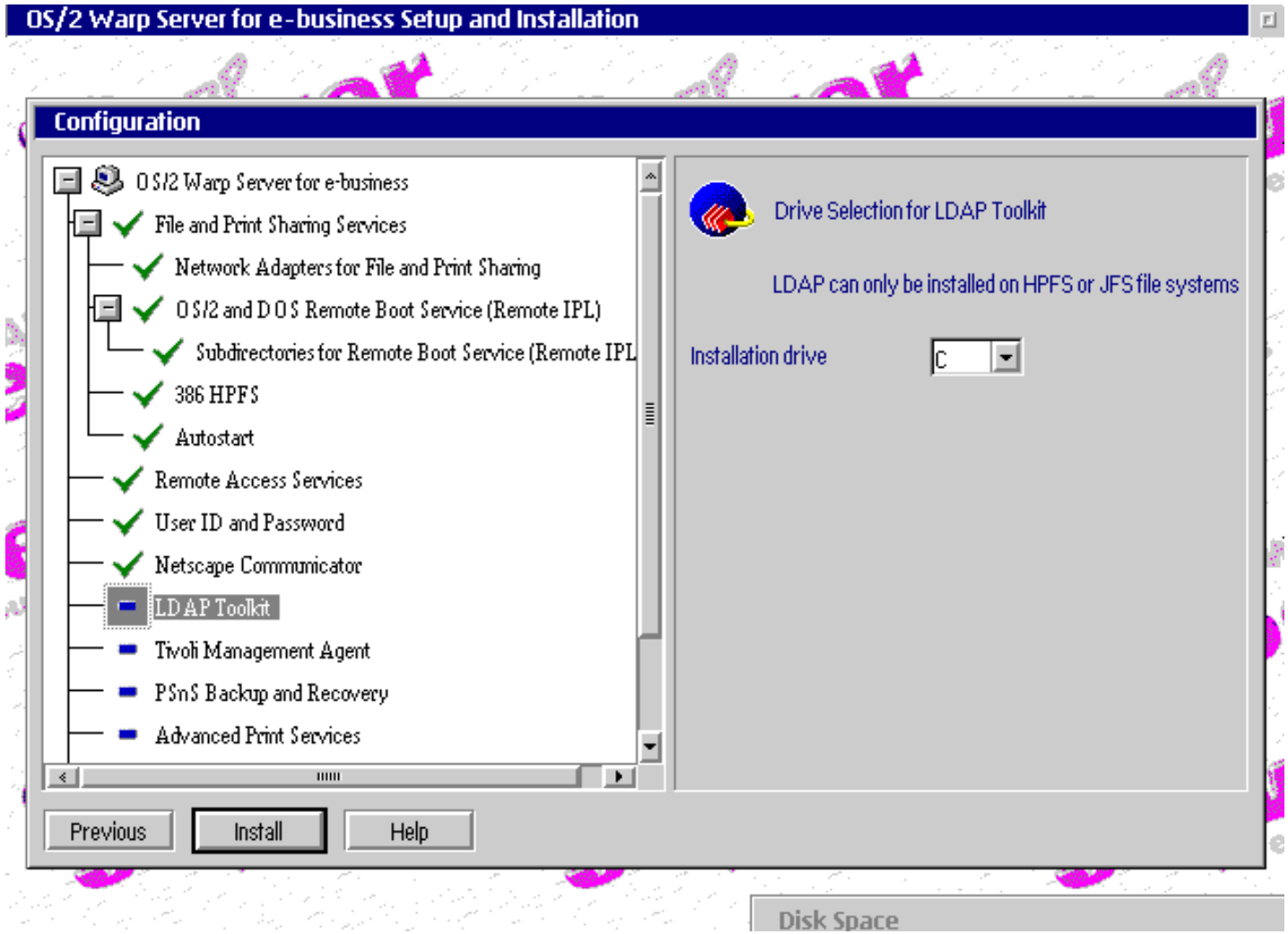
# TCP/IP Services



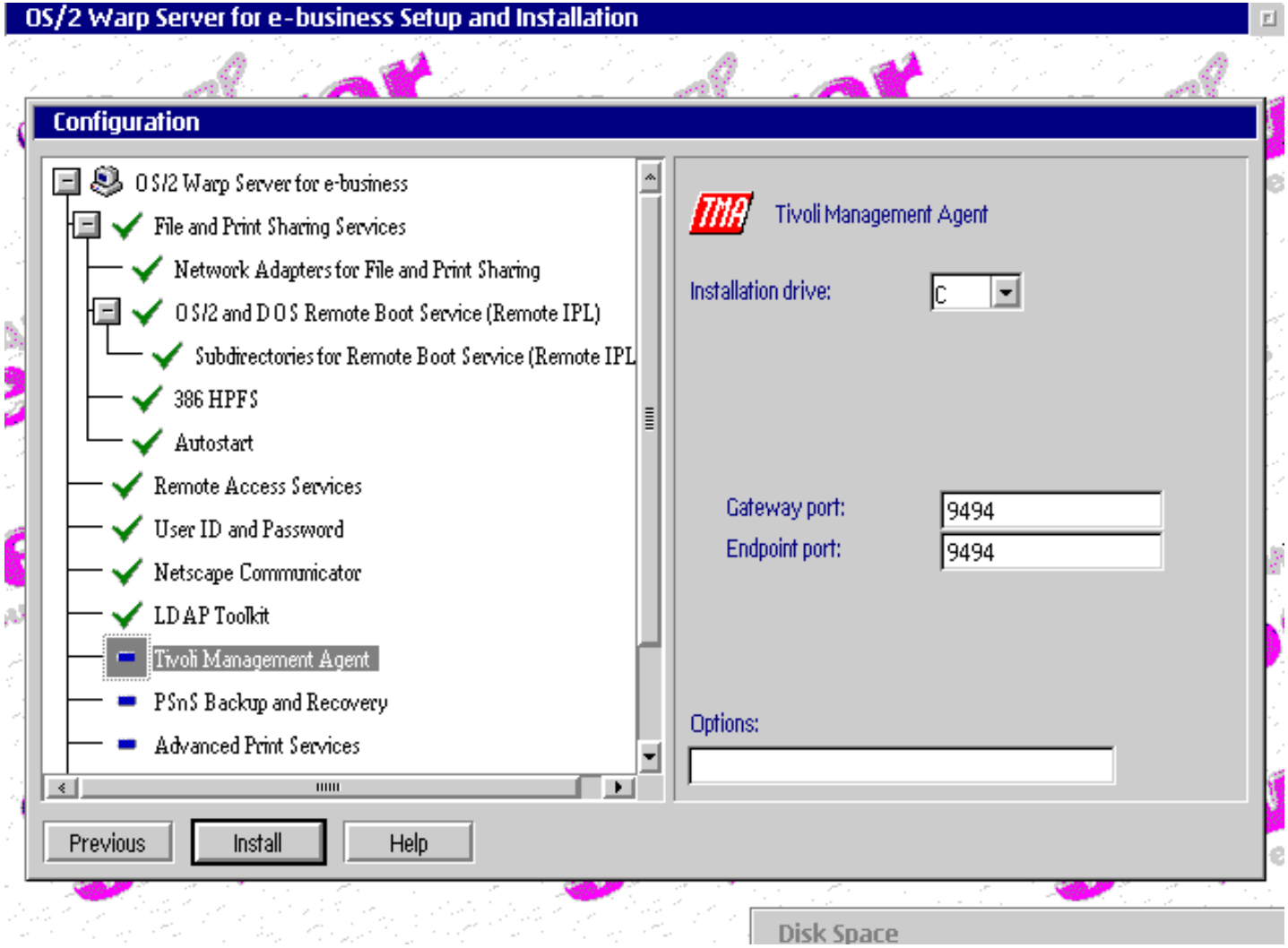
# Netscape Communicator



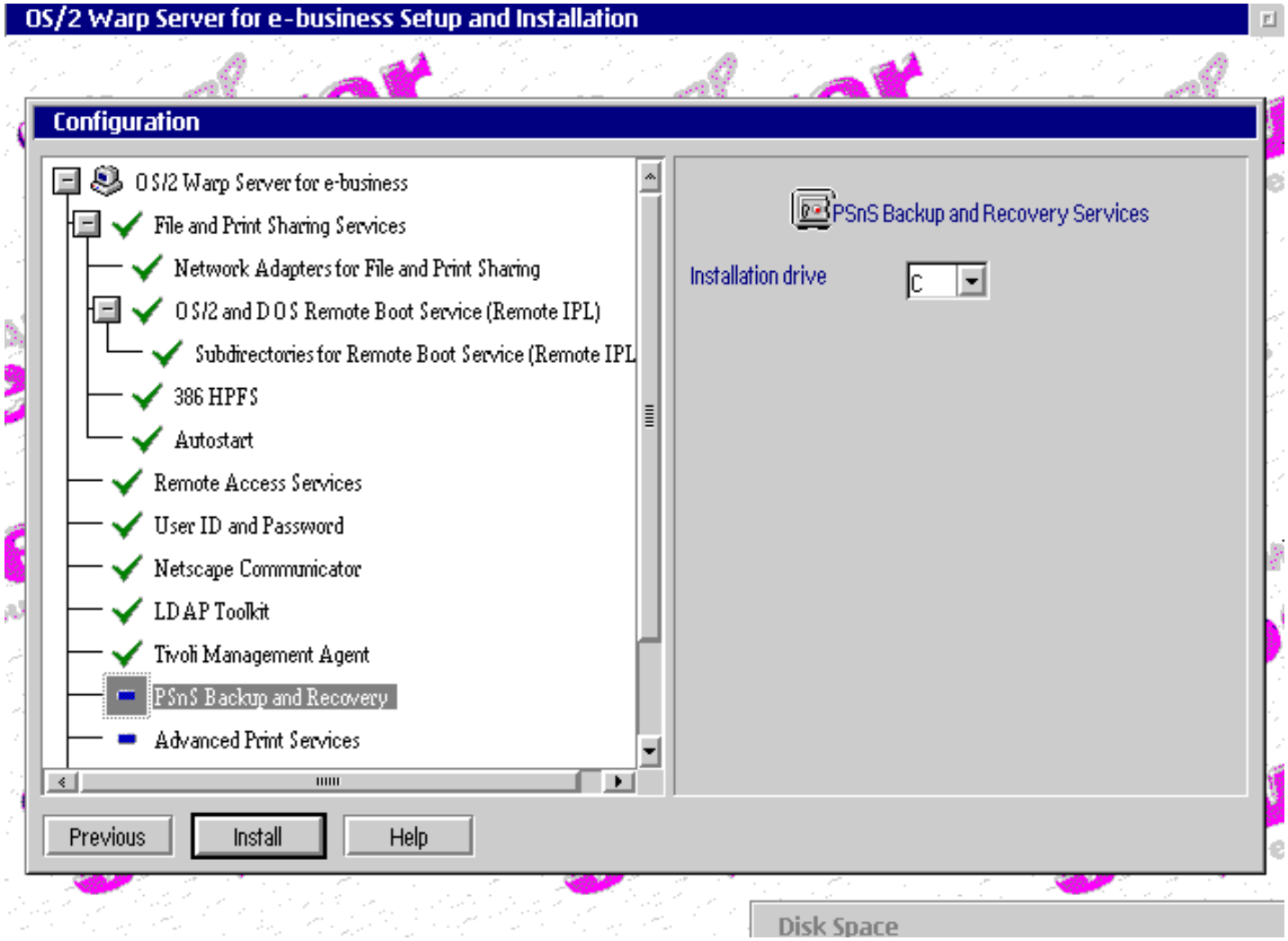
# LDAP Toolkit



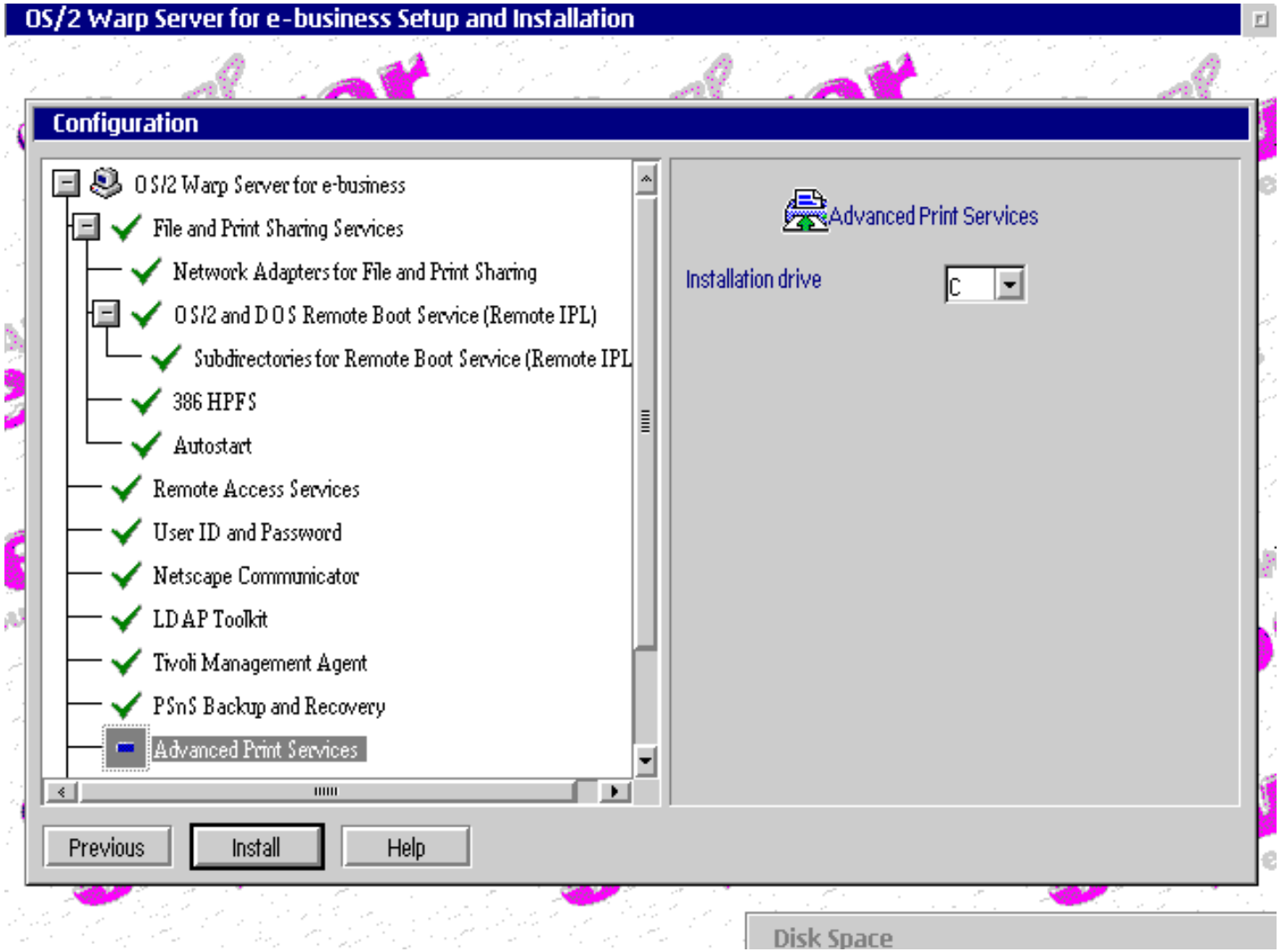
# Tivoli Management Agent



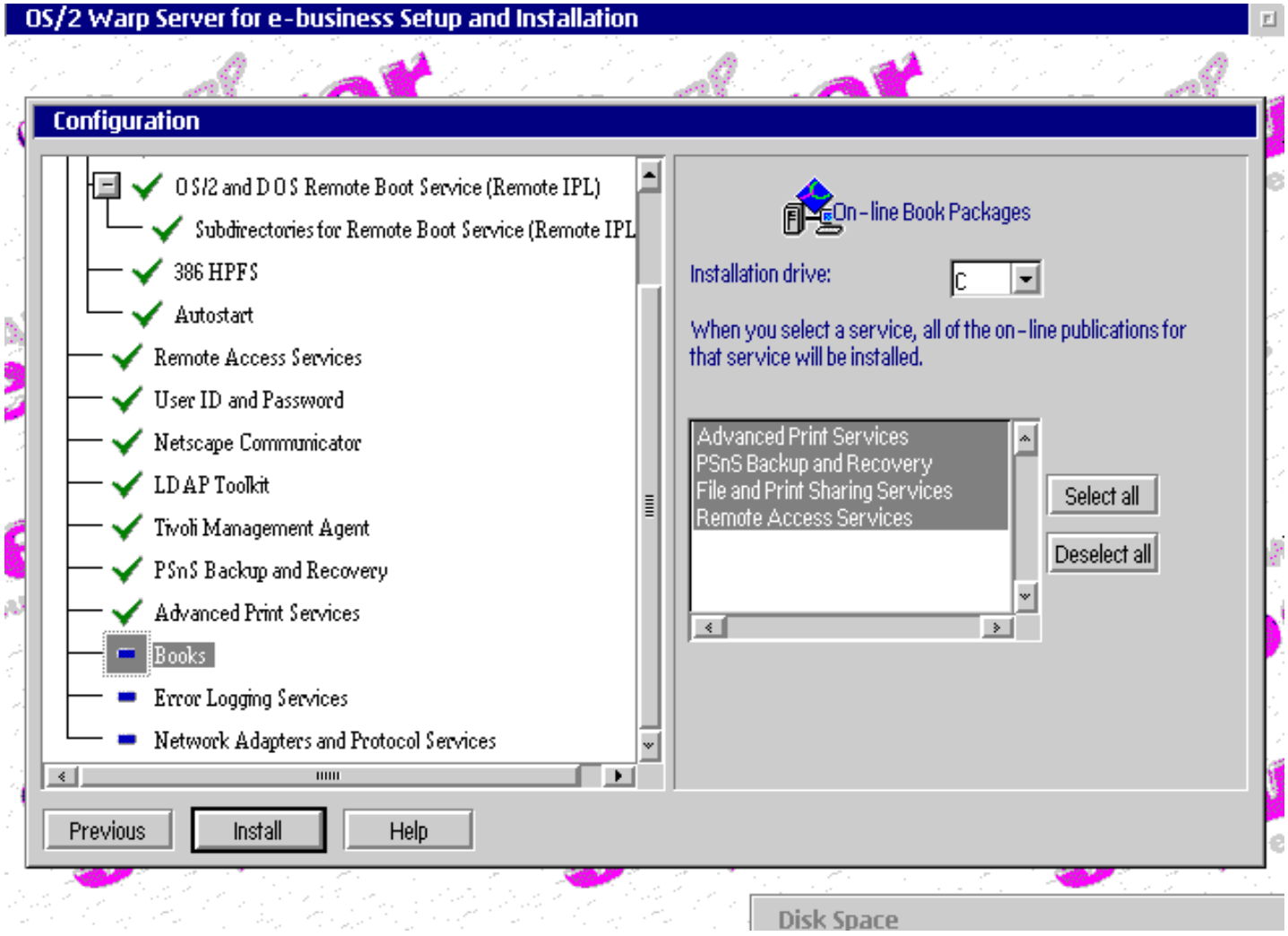
# Backup and Recovery (PSnS)



# Advanced Print Services



# Books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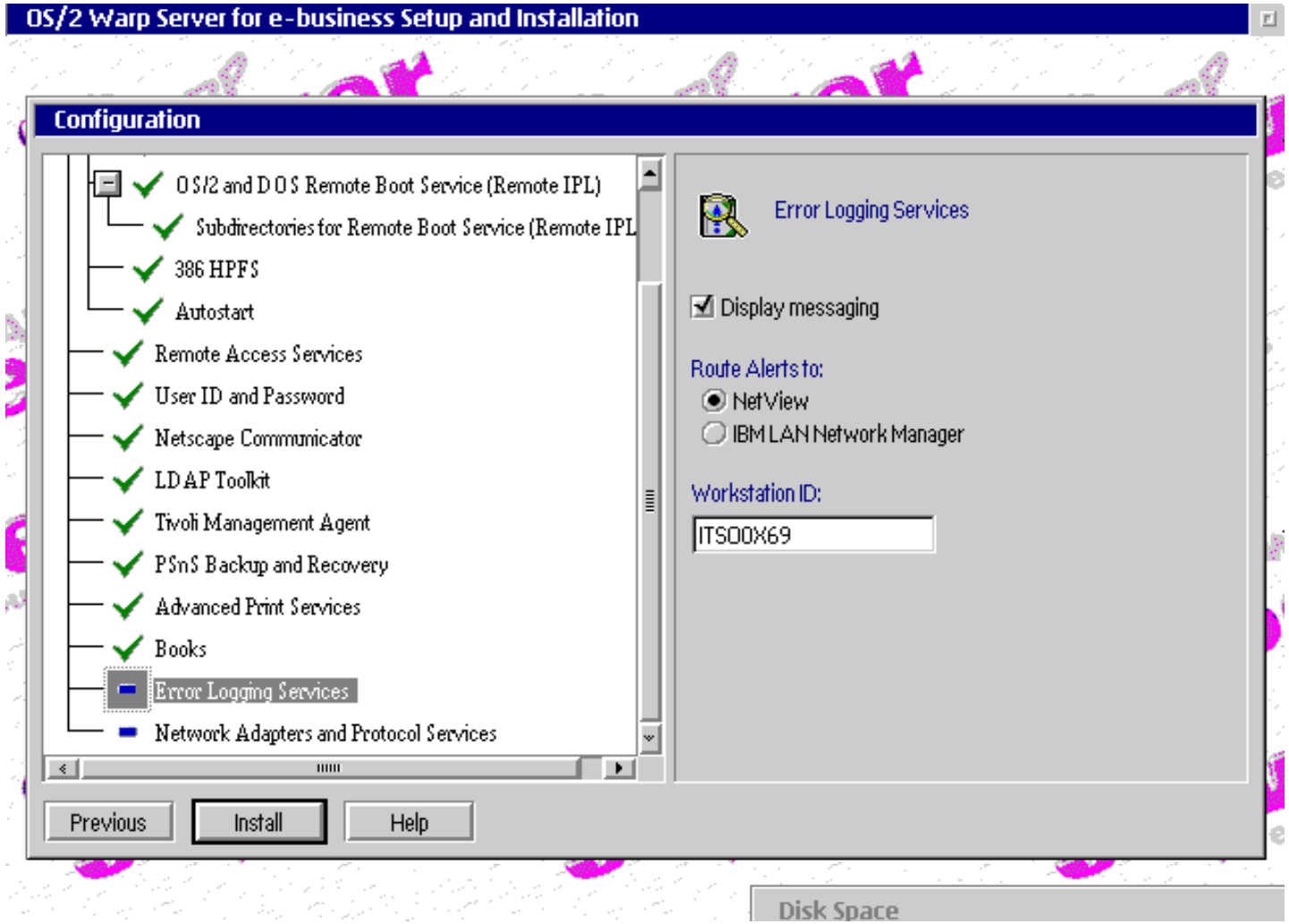
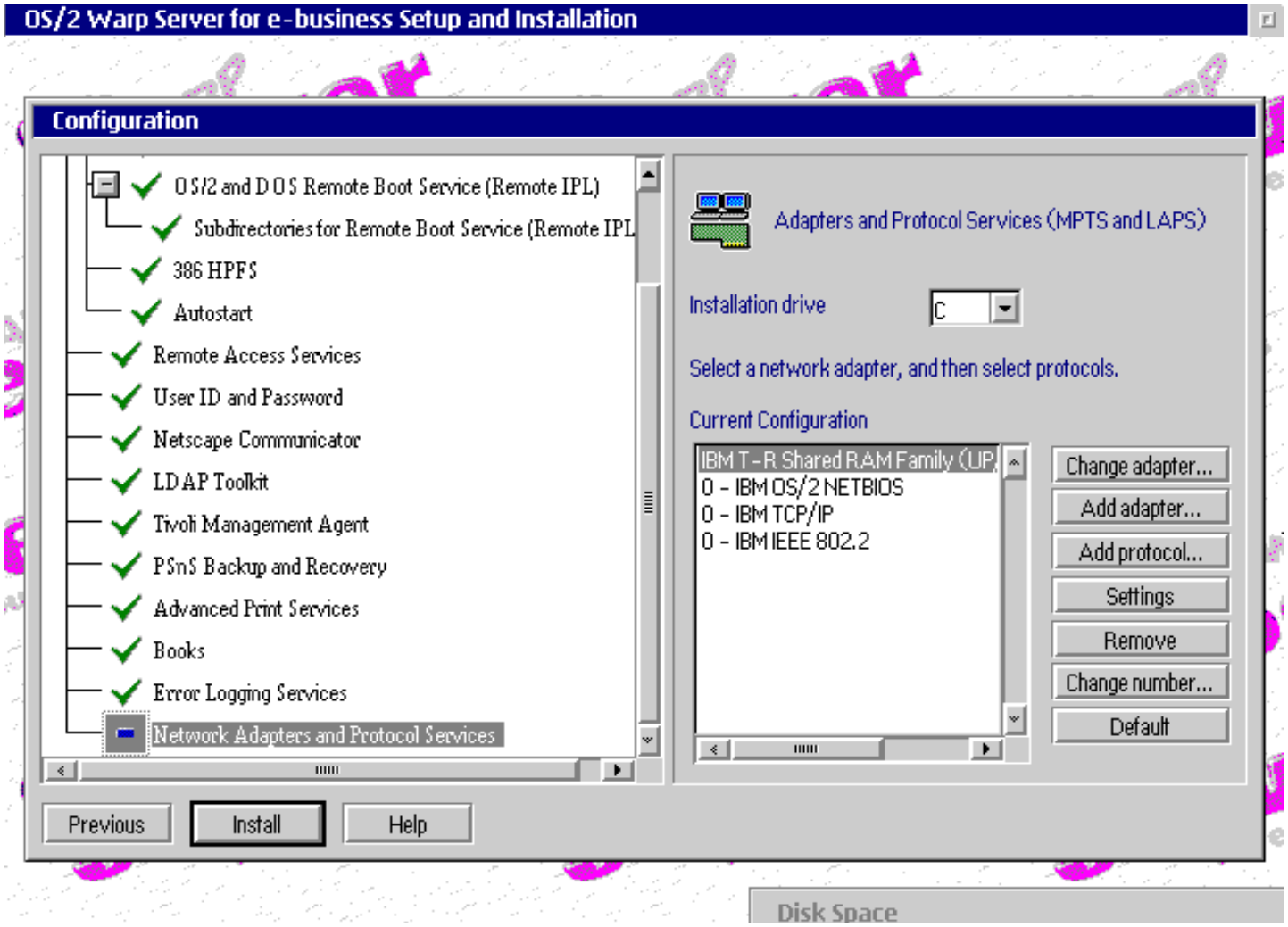
Tivoli Management Agent
PSnS Backup and Recovery
Advanced Print Services
Books
Error Logging Services
Network Adapters and Protocol Services
On-line Book Packages
Installation drive:
C
When you select a service, all of the on-line publications for that service will be installed.
Advanced Print Services
PSnS Backup and Recovery
File and Print Sharing Services
Remote Access Services
Select all
Deselect all
Previous
Install
Help
Disk Space

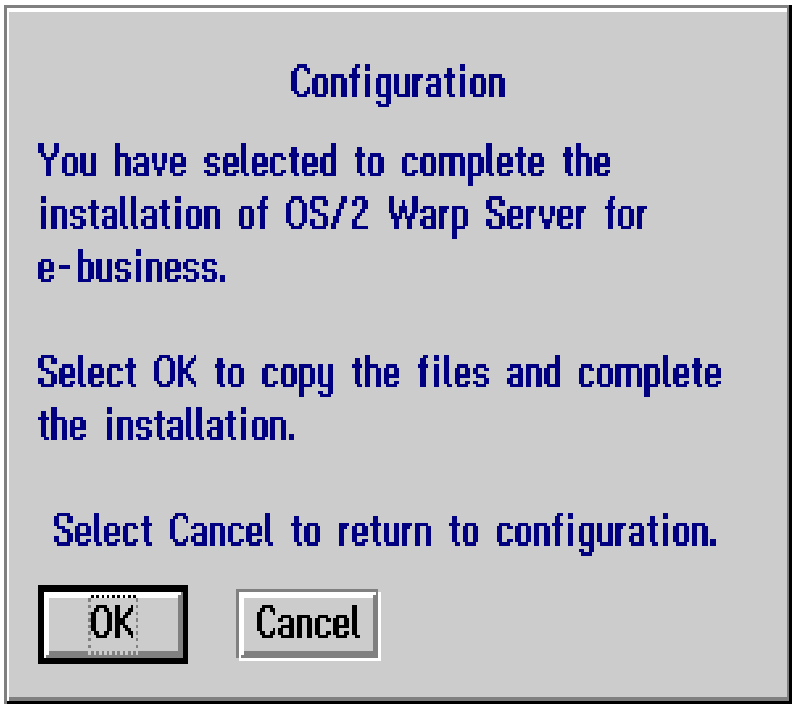
# Error Logging



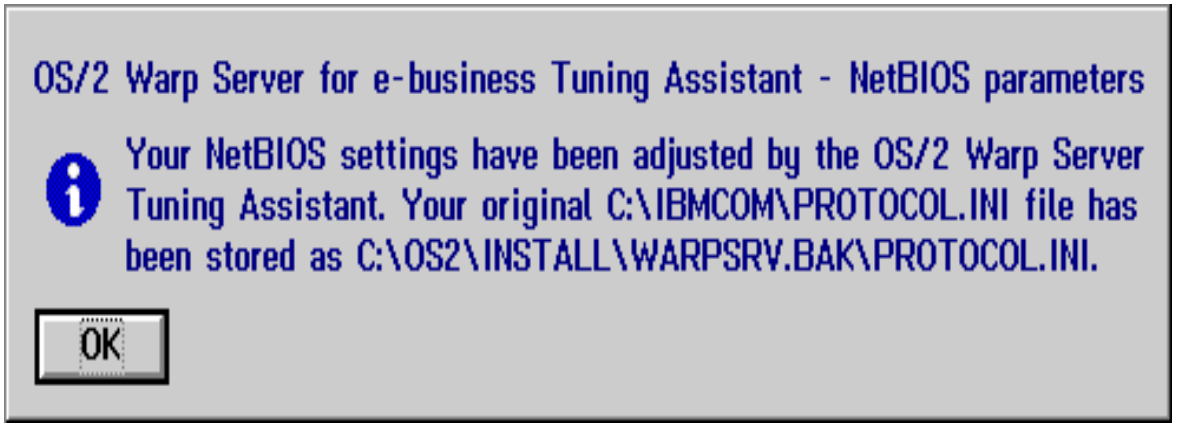
# Adapter and Protocol Services



# Configuration Complete



# Tuning Assistant



# Installing Additional Components

- MPTS Strong Encryption
  - Security features CD 1
  - SSL IPSEC Libraries
  - 56/128 bit encryption
- Lotus Domino Go Webserver
  - Security features CD 2
  - Install before Websphere
- IBM WebSphere
  - Security features CD 2
  - Uninstall Go Java Servlet Component
  - Update Java 1.1.7

# Unsupported Tools

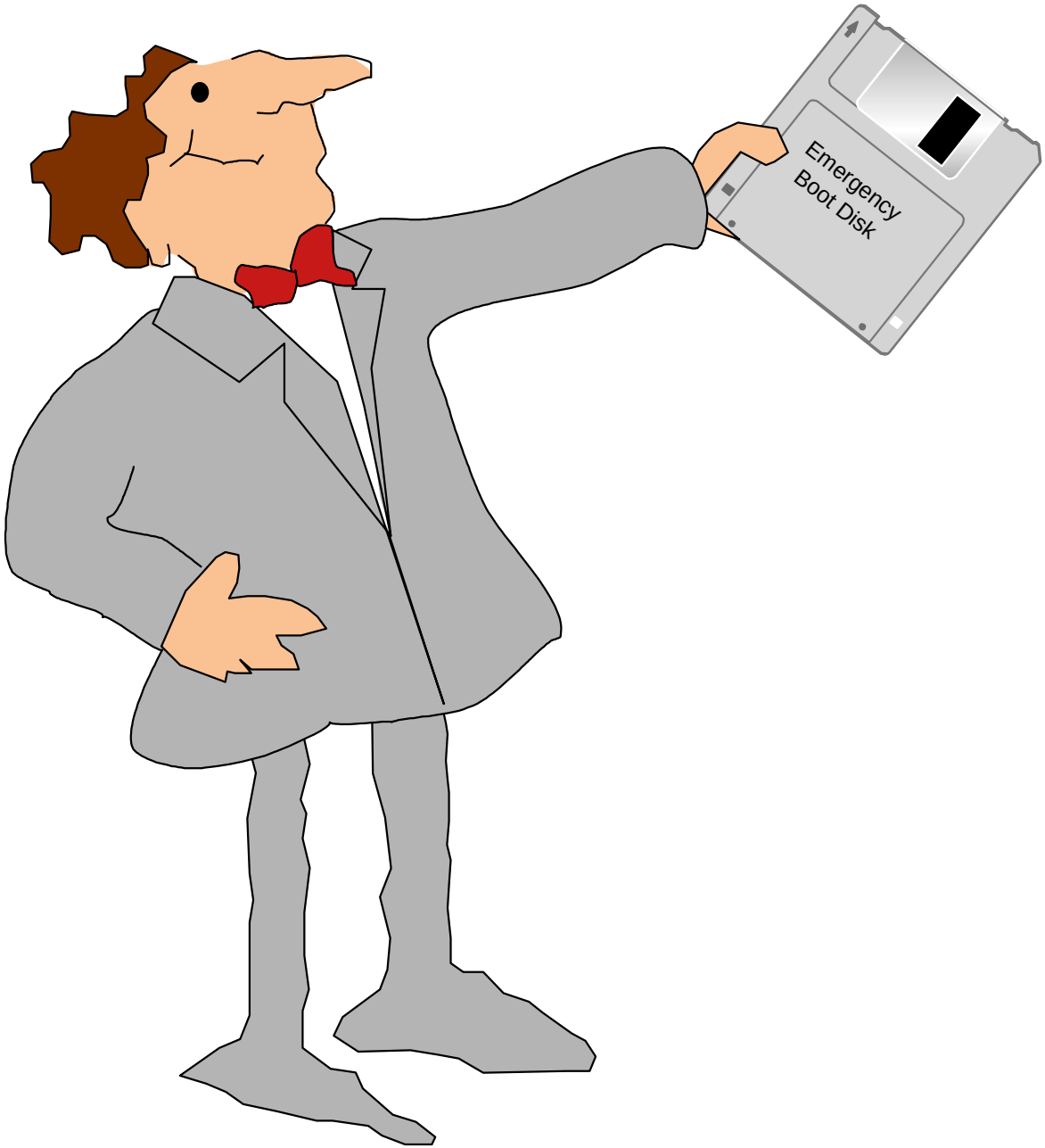
- MPTS Applets (\CID\SERVER\MPTS\UTILITY\APPLETS)
  - NBJDSTAT
  - DTF7
  - MCL
  - SNIFFLE
  - NETPING
  - LAPSDUMP
  - MAPNAME
  - OS2SNIFF
  - NB64K
  - NETTRACE

# Productivity Aids (\CID\SERVER\IBMLS\IBM500P1)

- SMBTOOL
- ACM
- QMC
- RDRDEBUG
- FINDNAME
- SNAPDF
- SNAPDUMP
- NCBSTAT
- NETSESS2

# Back up Critical Files

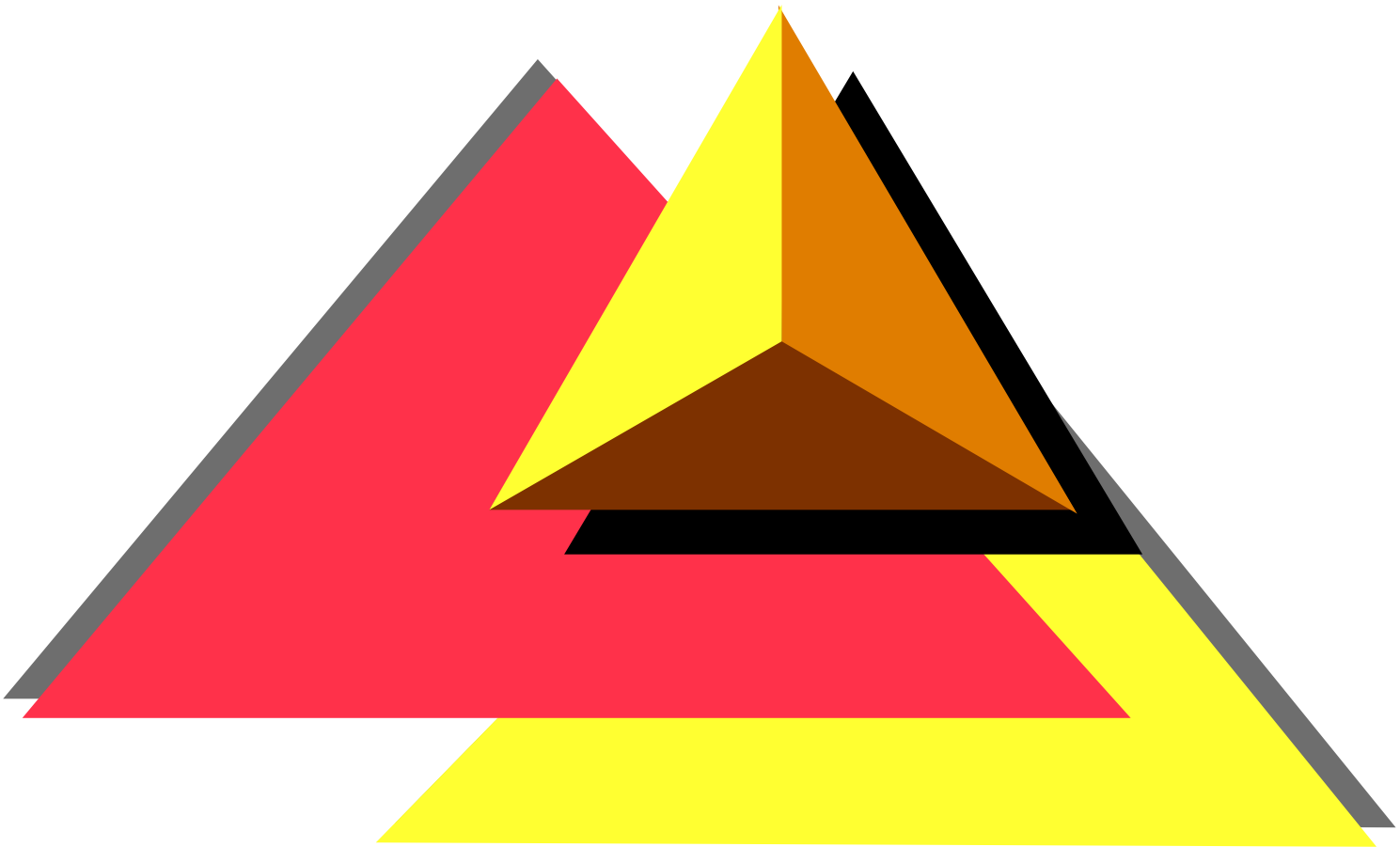
# Emergency Boot Disk



# Unit Summary

You should now be able to:

- Update installation diskettes
- Install, remove and configure boot manager
- Install and format a bootable OS/2 Warp Server for e-business volume
- Install and configure server components
- Create and name new partitions
- Create, modify, and format volumes
- Configure the server to function in the context of the larger network
- Back up and print critical files
- Create emergency boot diskettes
- Install Lotus Domino
- Install IBM WebSphere
- Test the network installation and configuration
- Document the network installation and configuration



# Administering Common Tasks in OS/2 Warp Server for e-business

# Objectives

After completing this unit, you should be able to:

- Perform initial network administration tasks checklist
- Start, stop, and pause server services
- Access the network from various systems
- Manage domains
- Define and share network resources
- Create and apply access control profiles
- Manage network printing
- Define and manage users and groups
- Manage and add volumes and partitions
- Implement backup and recovery
- Manage network security
- Create and manage server applications

# Initial Network Administration Tasks

- Create spooler queues and printers on the servers
- Start the domain controller, logon to the DC, and define additional servers
- Disable and re-enable user logon (optional)
- Define shared resources (directories, printers, and serial devices)
- Define access control profiles for the resources
- Create public applications definitions to be shared on the network
- Define users and groups
- Assign resources to be made available to users during logon
- Plan to backup the domain controller database (DCDB) regularly
- Print/save the domain definition

# Managing Network Services

- Alerter
- DCDB Replicator
- Generic Alerter
- LSserver
- Messenger
- NetLogon
- Netrun
- Network Neighborhood Browser Enabler
- Peer
- Remote IPL
- client
- Server
- Timesource
- UPS

# Network Service Status

The text below shows network service status types.

| Status | Meaning |
| --- | --- |
| **Started and Active** | The service is running normally |
| **Not started** | The service has not been started |
| **Started and paused** | The service has been stopped temporarily |
| **Started with pause pending** | The service is about to pause |
| **Started with continue pending** | The service is about to continue after being paused |
| **Stopping** | The service is about to stop |
| **Starting** | The service is about to start |

# Guidelines for Stopping and Pausing Network Services

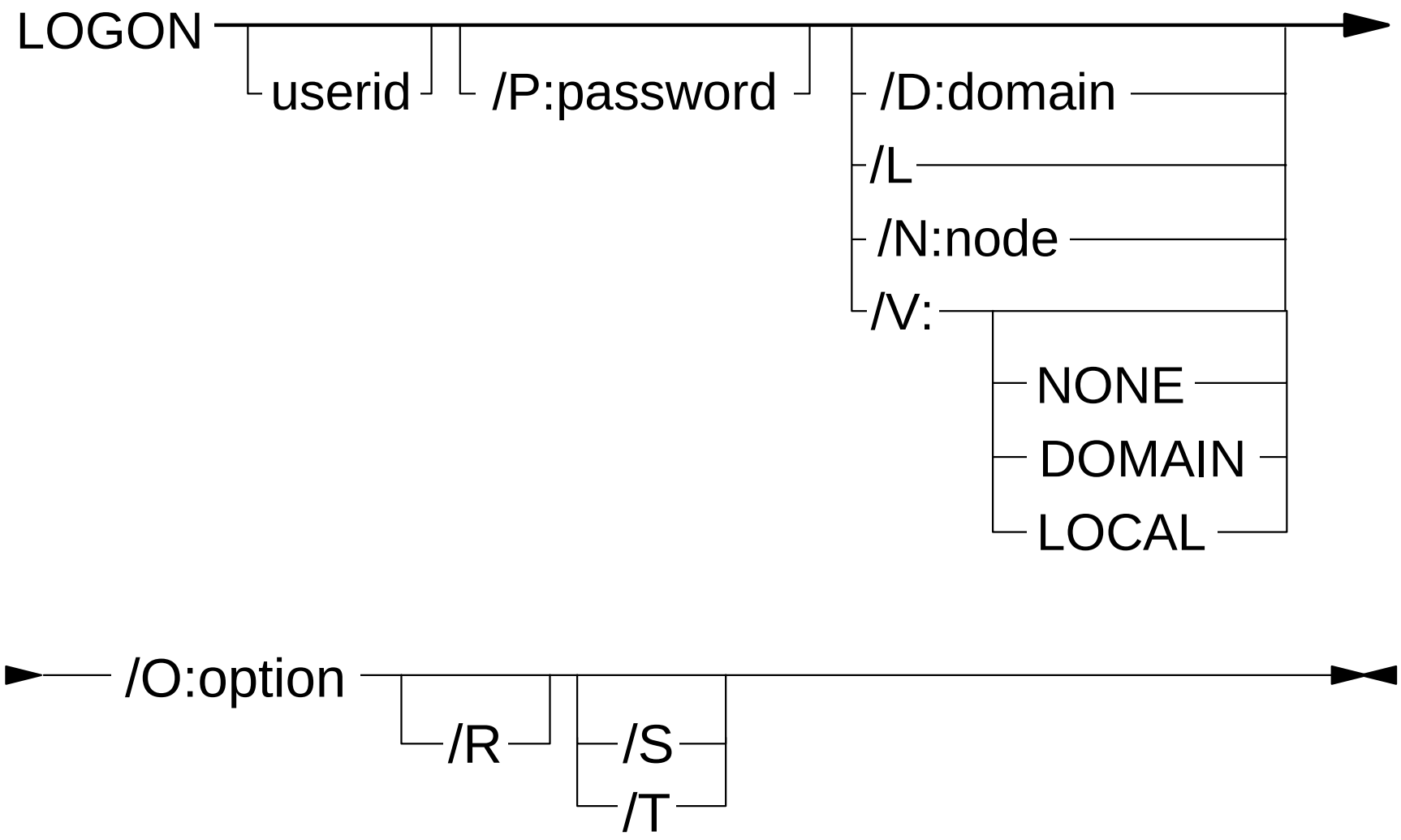
Keep the following in mind when stopping and pausing network services:

- When the Messenger service is stopped on a workstation, that workstation can no longer receive messages or alerts.
- When the Requester service is stopped on a server, the server and OS/2 Warp Server or LAN server program also stops. Users lose access to that server's network resources. If any user is logged on at that server, stopping the Requester service logs them off. After the Server service stops on a server, that workstation can function only as a client and can no longer share resources with users.
- Pausing a client temporarily disables use of shared resources, but you are not disconnected from those resources. If you pause a server, no new requests to use the resources at that server are accepted. However, pausing a server does not affect files that are currently open or outstanding requests to use resources.

# Stopping and Pausing a Network Service

- NetLogon
- Netrun
- Peer
- Requester
- Server

# Command Line Access



# LAN Logon (1 of 2)

# LAN Logon (2 of 2)

- User account defined on the other domain
  - Password should be identical
- Access permissions on the other domain
- othdomains =

# Setup the Domain

- Installation on all servers
- Administrator logon
- Define Additional servers
- Start Backup Domain Controllers
- Start Additional servers
- Disable User logons
  - NET PAUSE NetLogon
- Define users and groups
- Define shared resources
- Define access control profiles
- Install and define public applications
- Configure Remote IPL
- Assign logon assignments
- Plan to back up the domain controller database
- Enable User logon
  - NET CONTINUE NetLogon
- Print/save the Domain Controller Database

Refer to Chapter 2 of the *Network Administrator's Guide*

# USERS

- Features
  - Up to 16,000 users per domain
  - User and group ID cloning
  - Drag and drop enablement
  - Home directories for users
  - Directory limits on users
- Managed through NET.ACC
- Changes propagated to additional servers
- UPM (local)
- Restricted names
  - ADMINS - SERVERS
  - GROUPID - SYSASID
  - GUESTS - USERS
  - LOCAL - IBM ???
  - PUBLIC - SQL???
  - RPLGROUP - SYS???
- Logon assignments
- Public applications
- Privileged operators

# GROUPS

- 247 group IDs per domain (256-9 reserved)
- Restricted names
  - USERS
  - ADMINS
  - GROUPID
  - SERVERS
  - LOCAL
  - GUESTS
  - RPLGROUP
  - SYSASID
  - PUBLIC

Refer to Chapter 5 of the *Network Administrator's Guide*

# Access Control Profile

- Independent of alias or netname
- File, Directory, Root
- Propagation
- User or Group (64 max)
  - None (N)
  - Delete (D)
  - Attributes (A)
  - Execute (X)
  - Read (R)
  - Write (W)
  - Create (C)
  - Permissions (P)

# Access Permissions Applicable to Resource Types

| Access permission | Files | Printers | Serial Devices | Named Pipes |
|---|---|---|---|---|
| None (N) | X | X | X | X |
| Execute (X) | X | | | |
| Read (R) | X | | X | X |
| Write (W) | X | | X | X |
| Create (C) | X | X | X | X |
| Delete (D) | X | | | |
| Attributes (A) | X | | | |
| Permissions (P) | X | X | X | X |

Refer to - Chapter 7 of the *Network Administrator's Guide*

# Types of Resources

- Directory Resources
  - Directory or subdirectory on a server containing programs or data files that can be made available to users.
- Spooler Queues (Printers)
  - An ordered list of print jobs waiting to access a printer. A printer pool is a group of printers servicing a single spooler queue.
- Serial Device Queues
  - Serial devices, such as plotters, com ports, modems
- Drives
  - Logical drive that contains a root directory and subdirectories
  - Sharing a drive resource allows LAN users to connect to all data and applications on that drive.
- Resources Other Domains
  - Any of the above. Previously called External Resources

# Sharing Network Resources

- Sharing using netnames
  - Unique name per server (UNC)
    - \\server1\netname\path
  - Not portable
- Sharing using aliases
  - Unique per domain
  - Portable
  - Required for
    - Public applications
    - Logon assignments

# Directory Limits (386 HPFS)

- Terms
  - Available space
  - Drive/Volume
  - Limit
  - Threshold alert
  - Threshold delay
  - Usage count
- Hierarchical
  - Directories only
  - Affects subdirectories
  - Users only

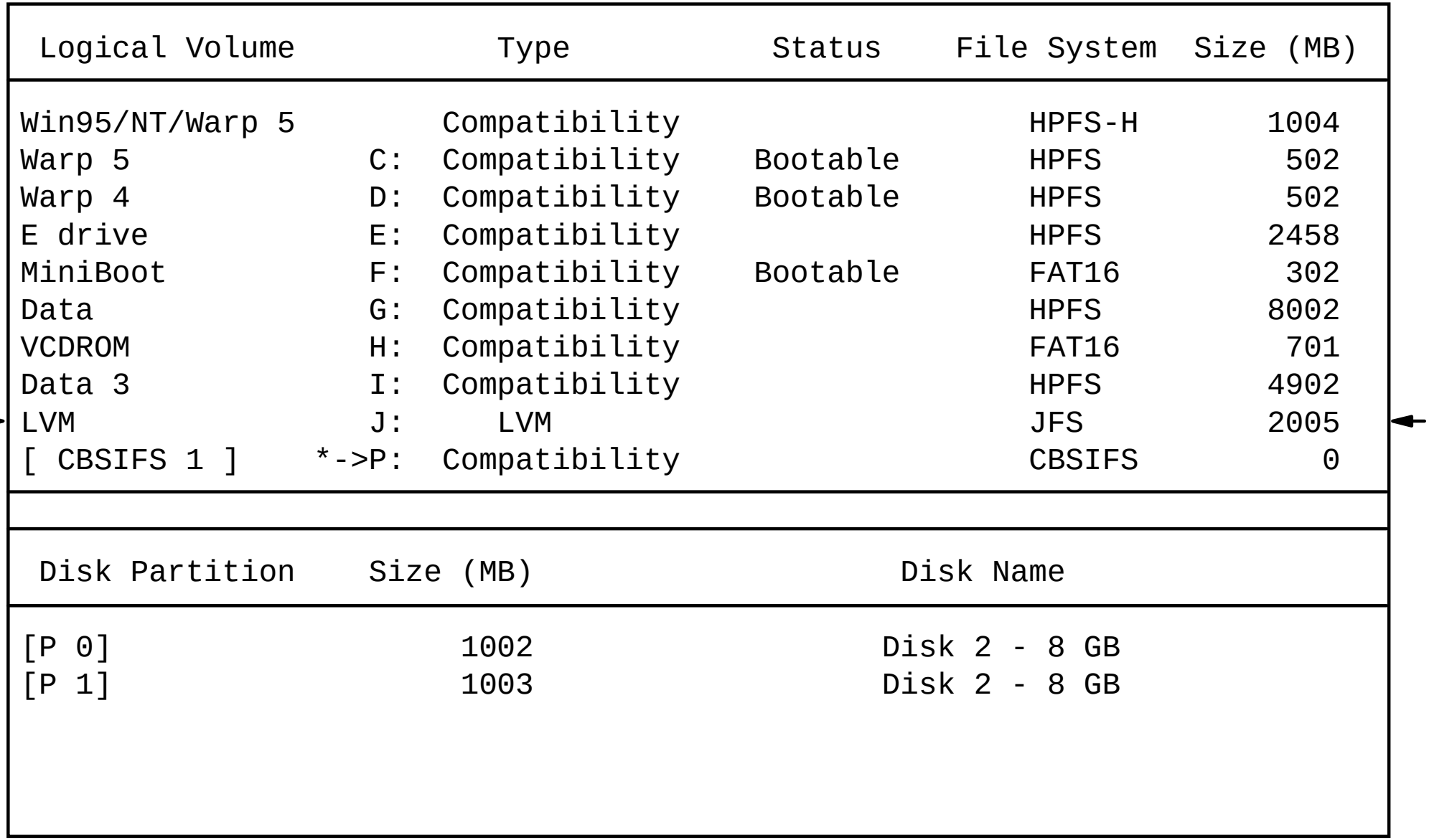
Refer to Chapter 6 of the *Network Administrator's Guide*

# Network Printing

- Printer objects are printer queues
- Network folder to manage network printers
- Print Operator Privilege
- Client and servers must have same level of drivers
- Printer settings
  - Network job view
  - Refresh interval
  - Separator file
  - Start time
  - Stop time

Refer to Chapter 11 of the *Network Administrator's Guide*

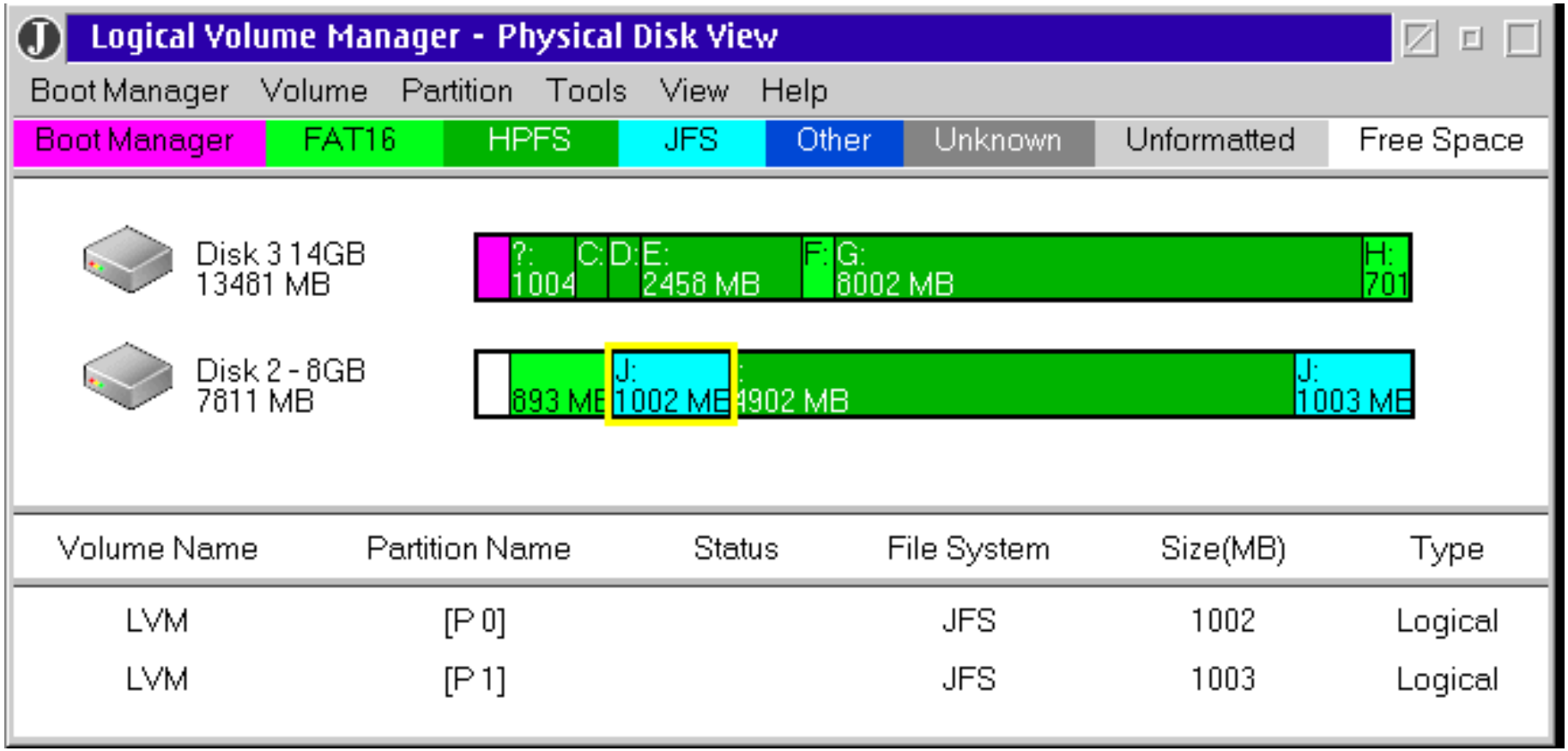
# Logical Volume Management Tool - Logical View



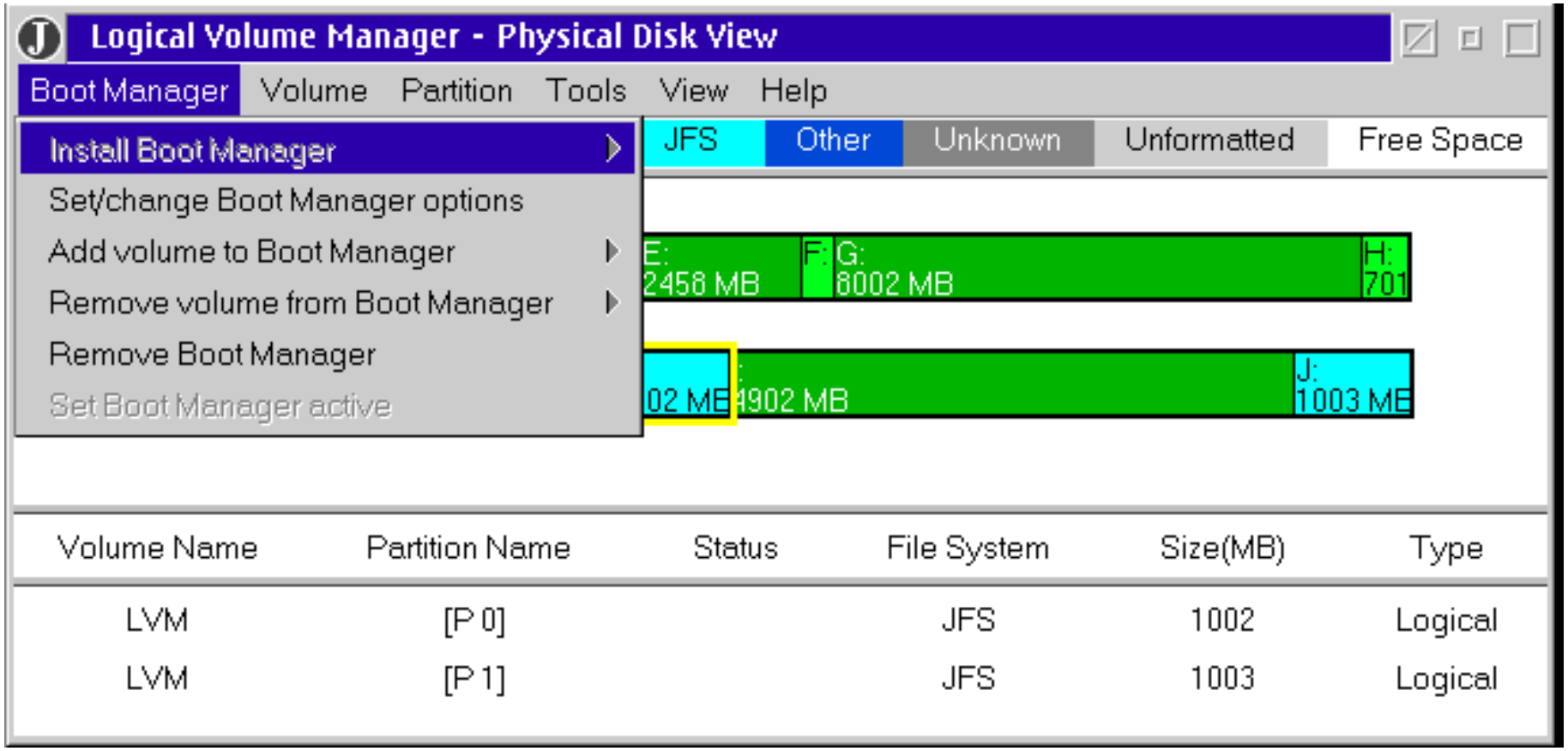
| Logical Volume | | Type | Status | File System | Size (MB) |
|---|---|---|---|---|---|
| Win95/NT/Warp 5 | | Compatibility | | HPFS-H | 1004 |
| Warp 5 | C: | Compatibility | Bootable | HPFS | 502 |
| Warp 4 | D: | Compatibility | Bootable | HPFS | 502 |
| E drive | E: | Compatibility | | HPFS | 2458 |
| MiniBoot | F: | Compatibility | Bootable | FAT16 | 302 |
| Data | G: | Compatibility | | HPFS | 8002 |
| VCDROM | H: | Compatibility | | FAT16 | 701 |
| Data 3 | I: | Compatibility | | HPFS | 4902 |
| LVM | J: | LVM | | JFS | 2005 |
| [ CBSIFS 1 ] | *->P: | Compatibility | | CBSIFS | 0 |

| Disk Partition | Size (MB) | Disk Name |
|---|---|---|
| [P 0] | 1002 | Disk 2 - 8 GB |
| [P 1] | 1003 | Disk 2 - 8 GB |

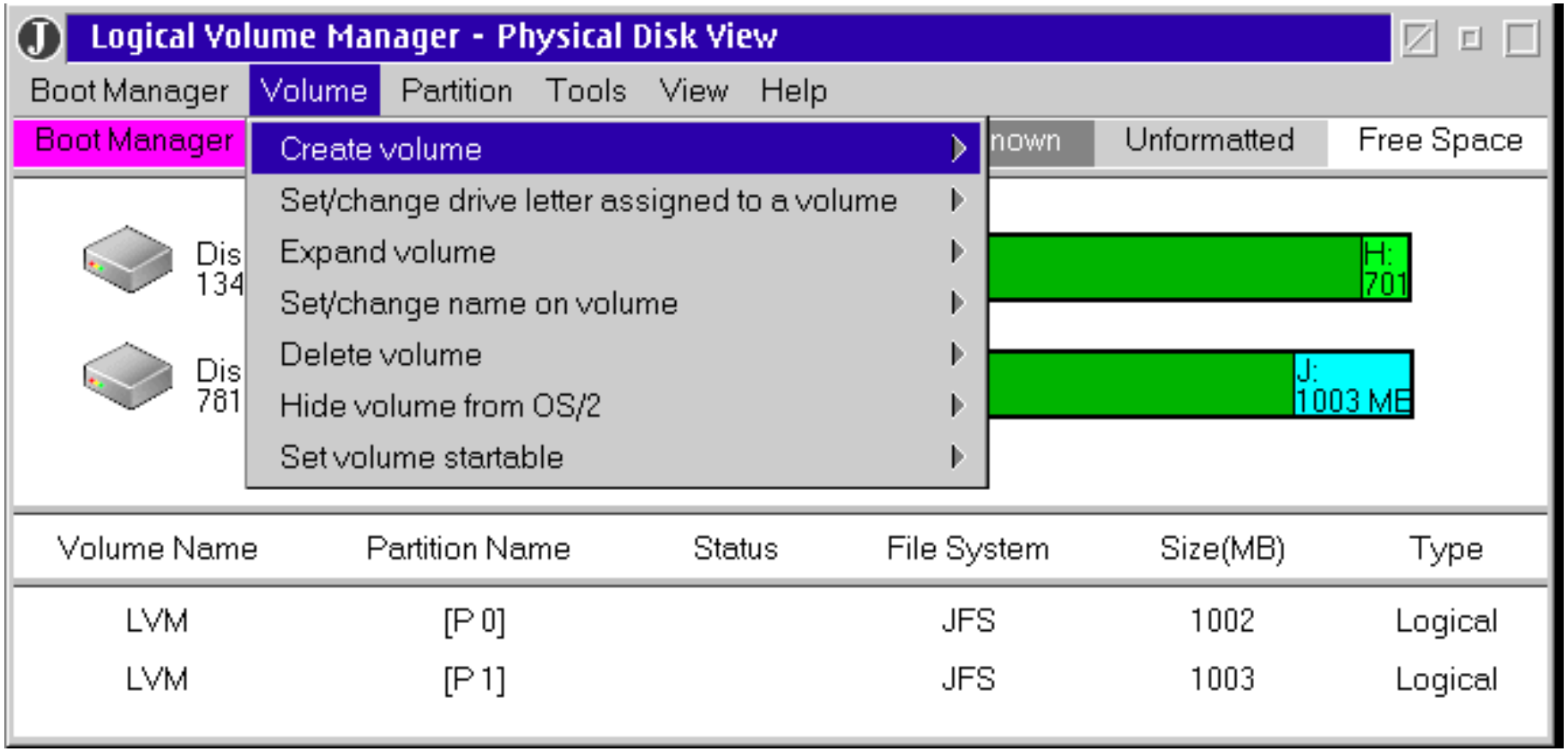
# Physical Disk View



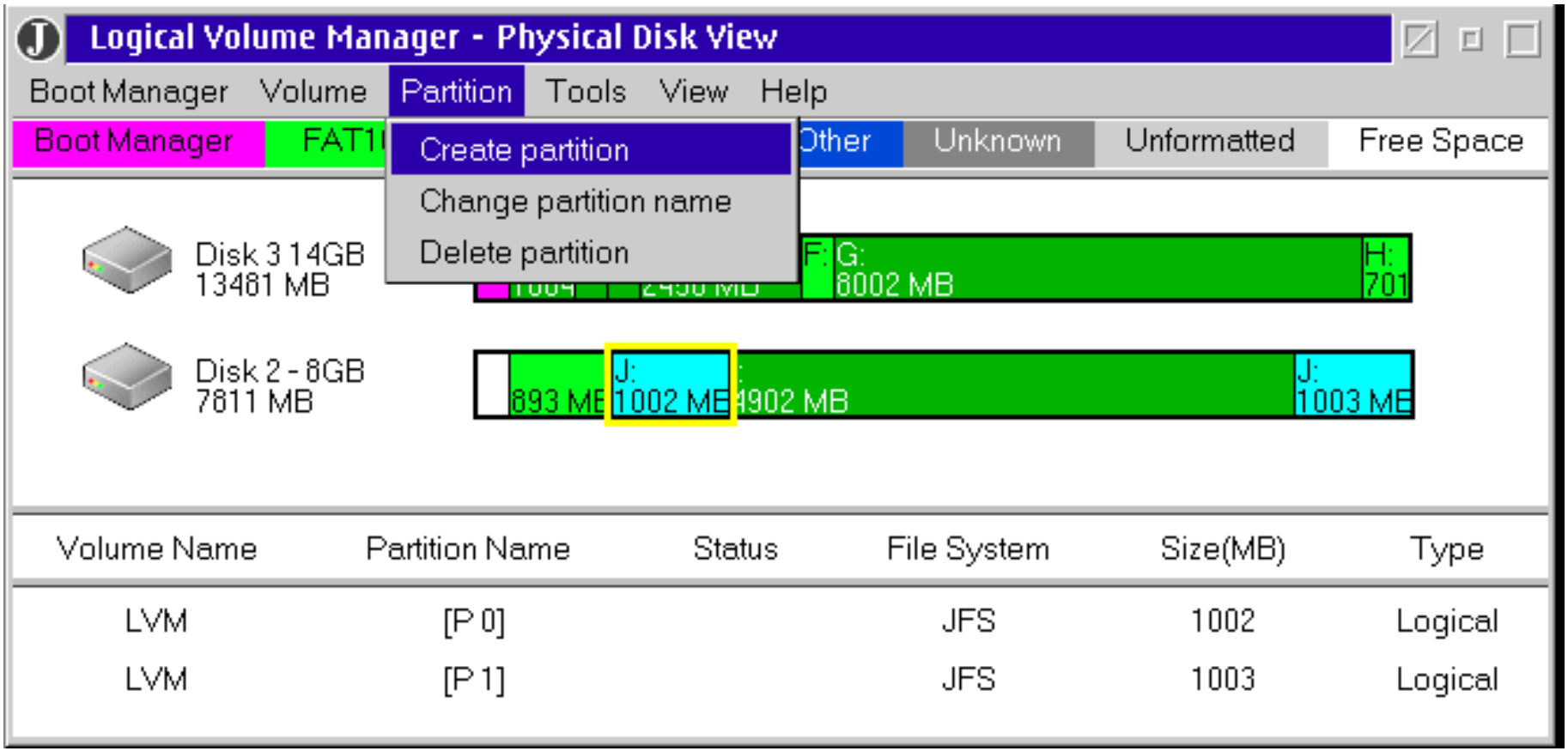
# Install Boot Manager



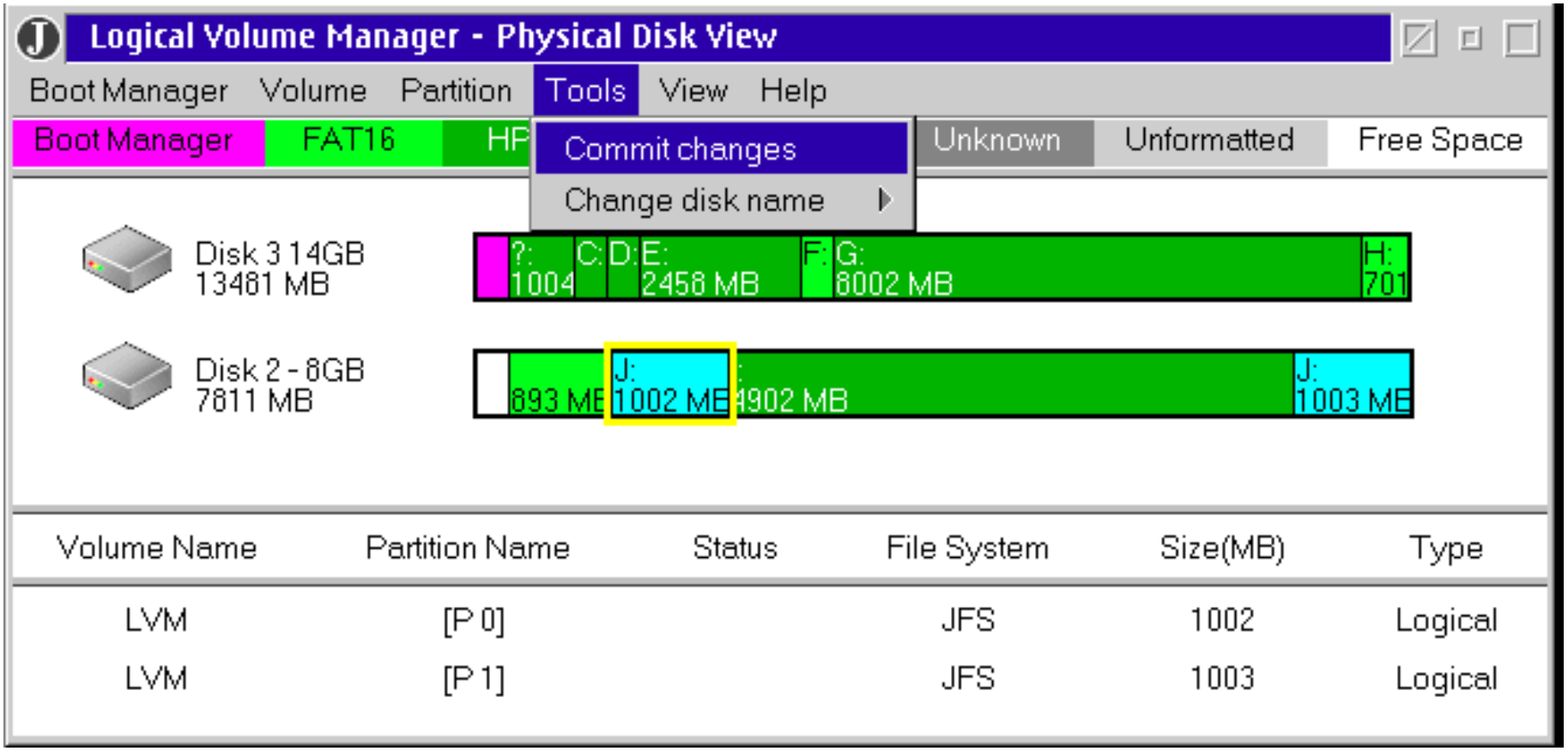
# Create Volume



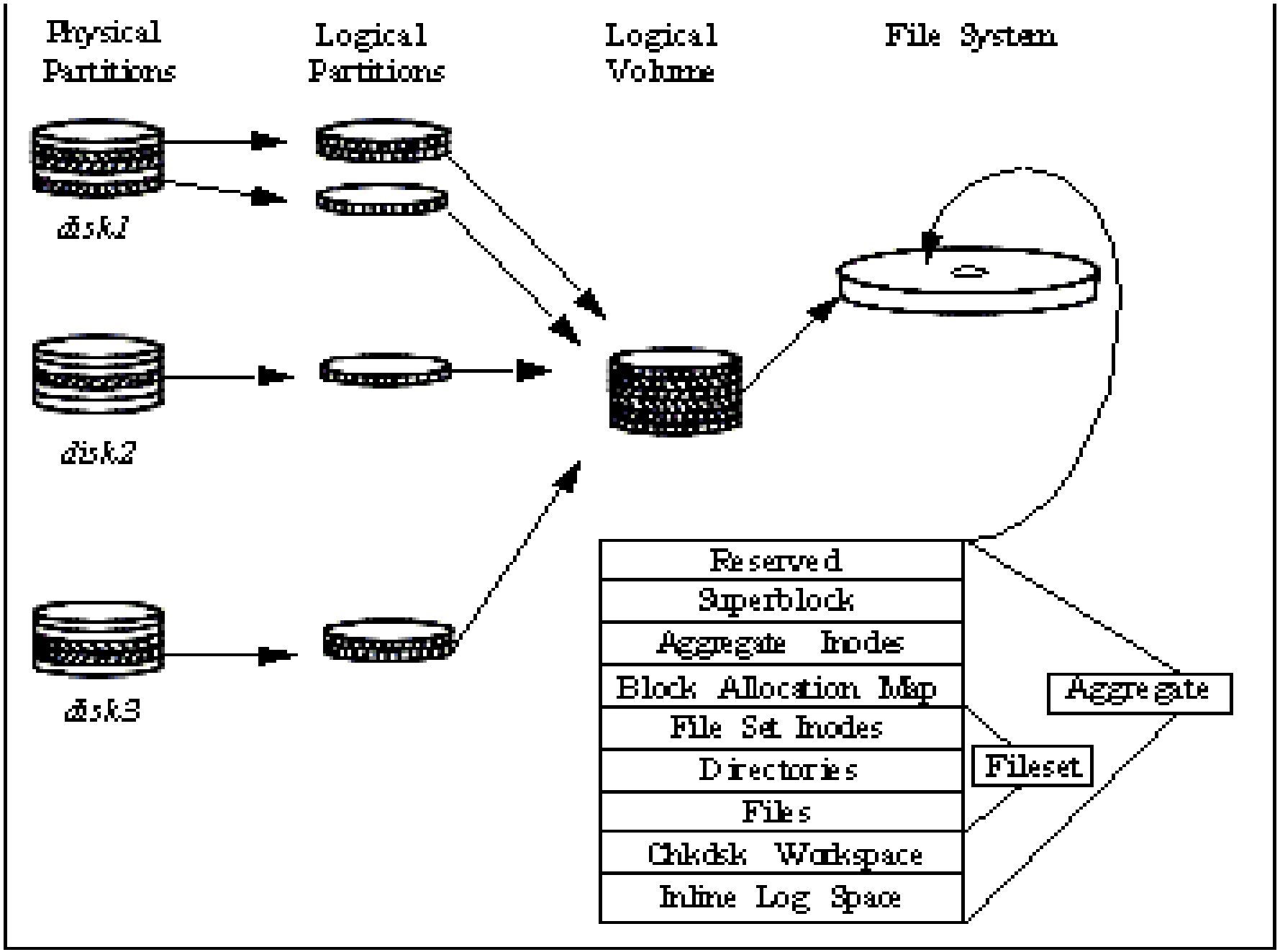
# Create Partition



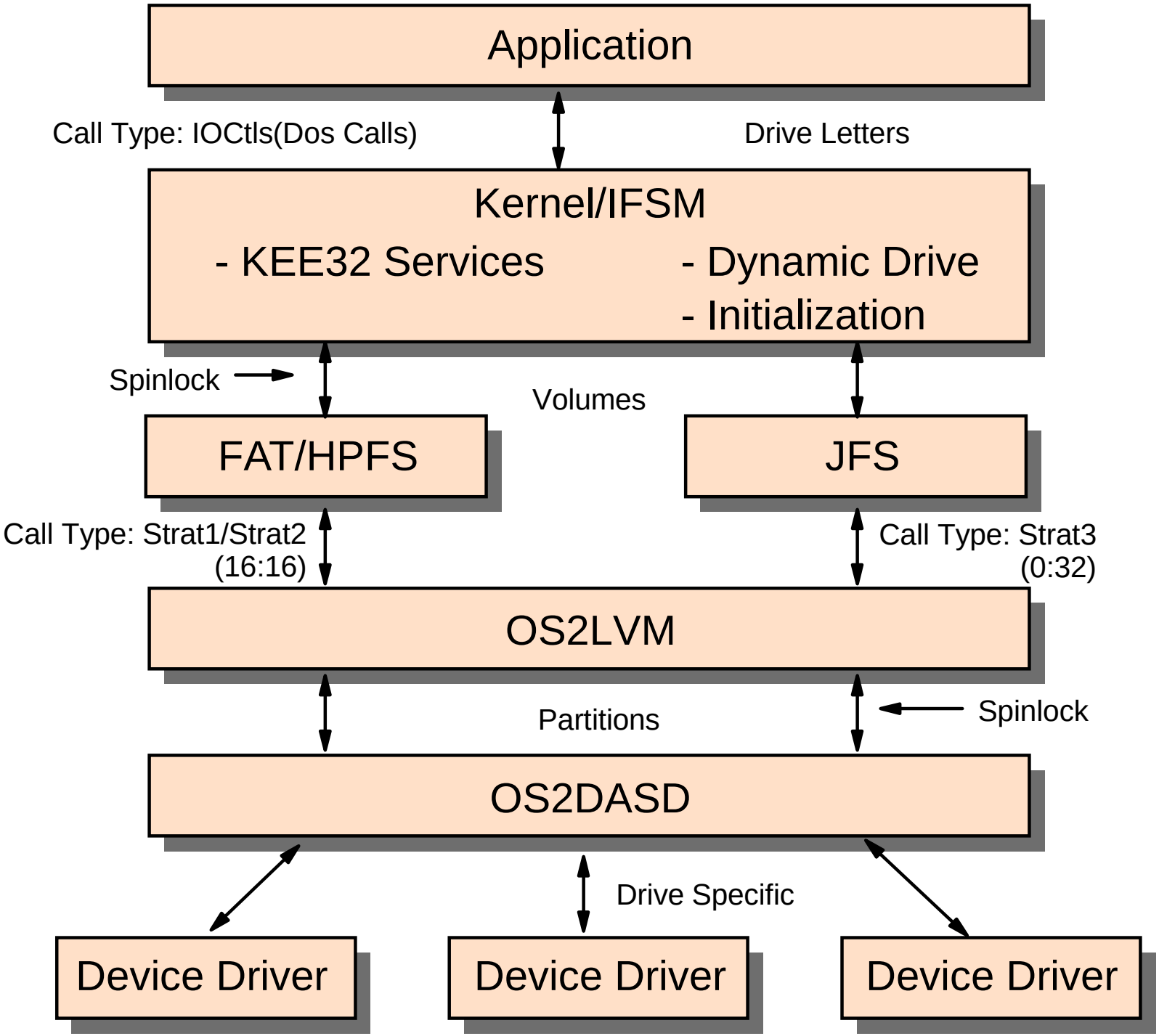
# Commit Changes



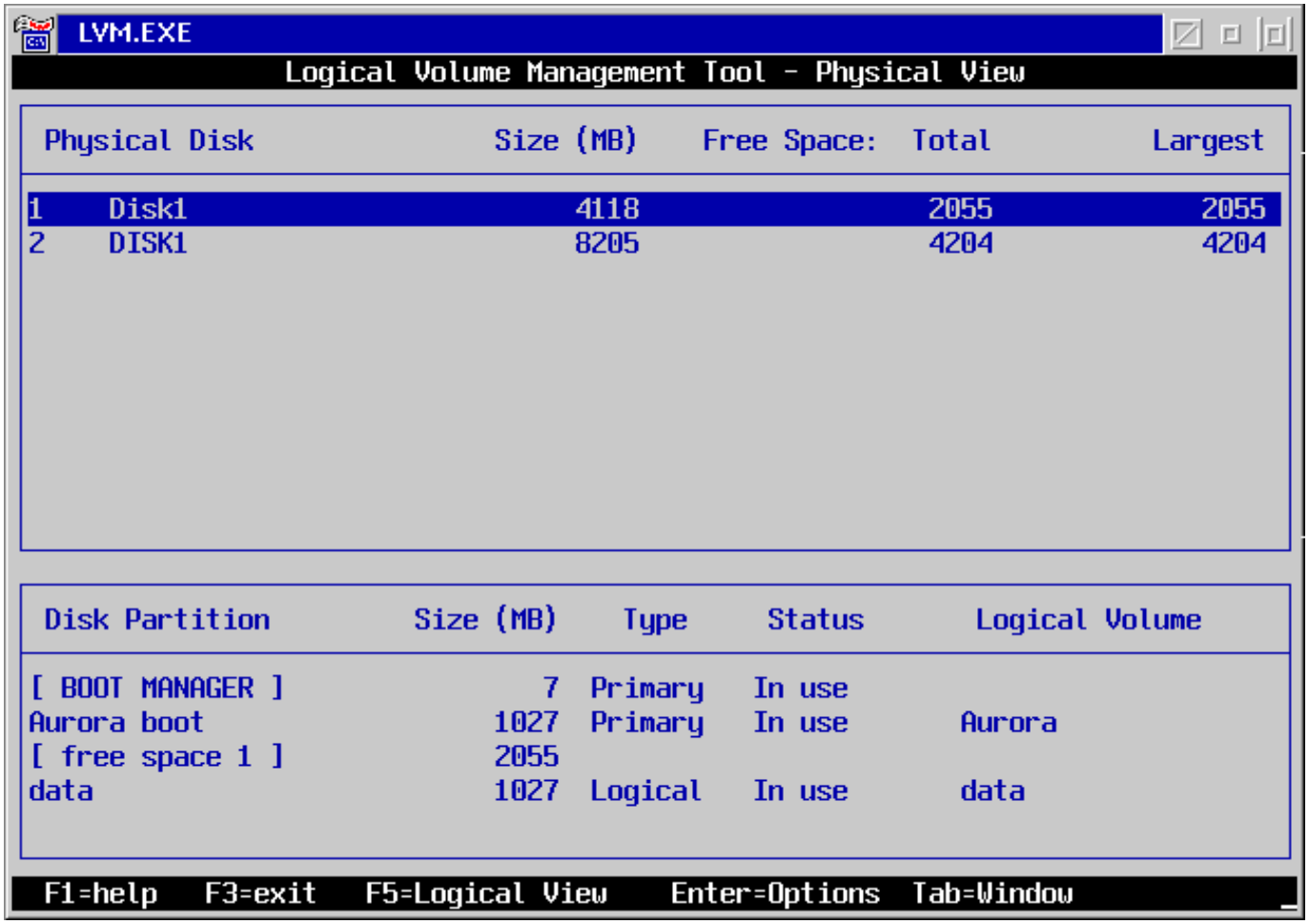
# LVM Overview



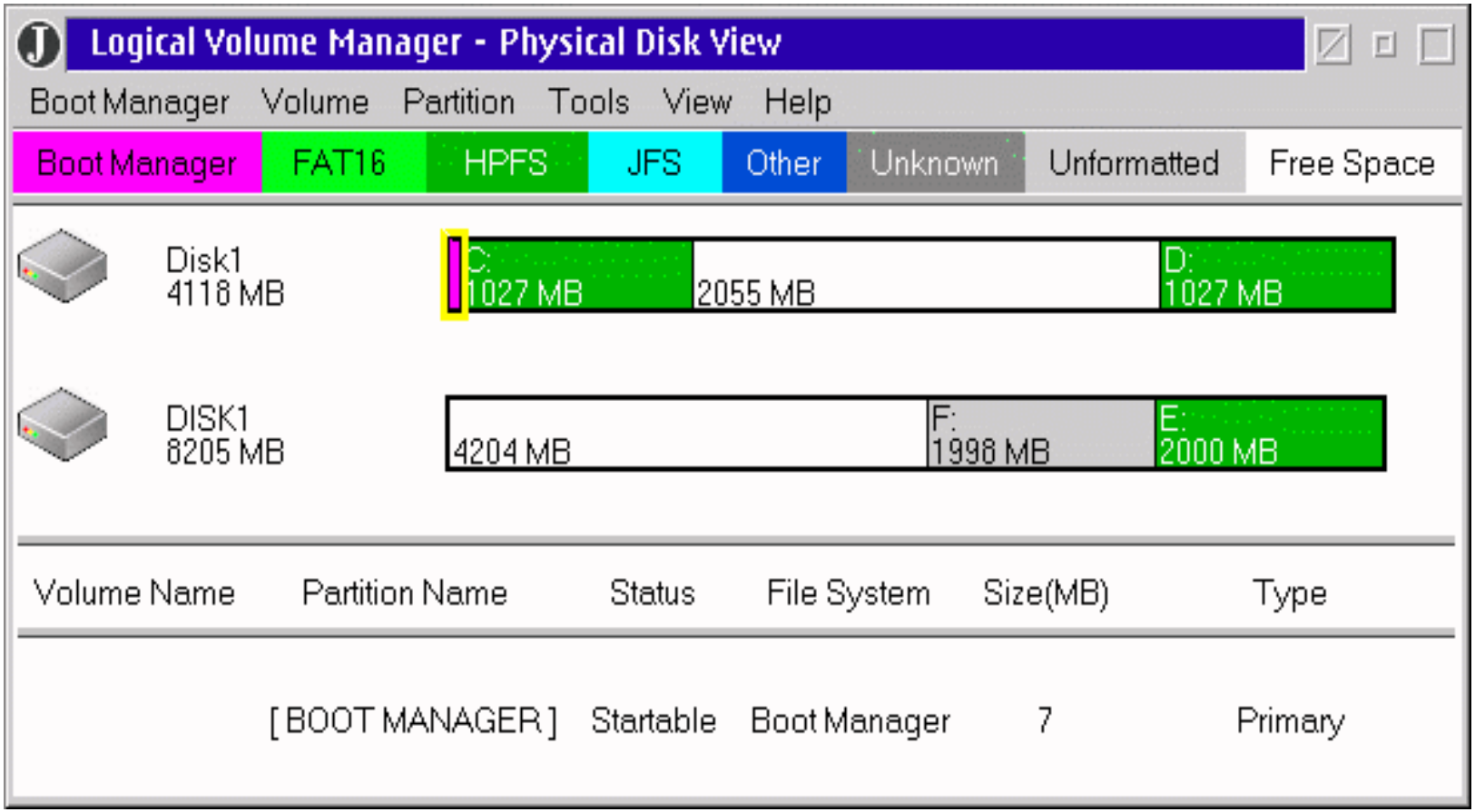
# LVM Components



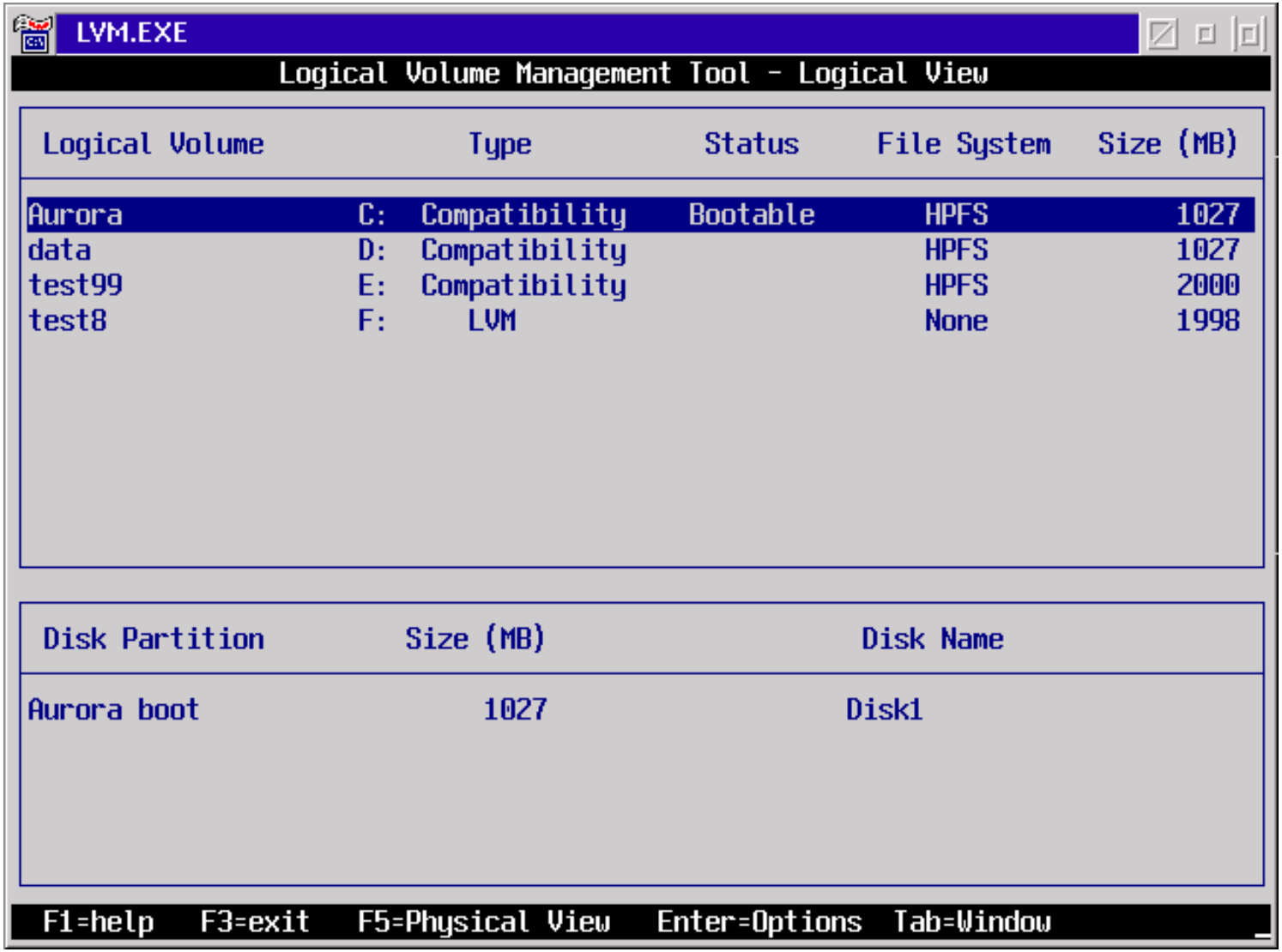
# Physical View via LVM



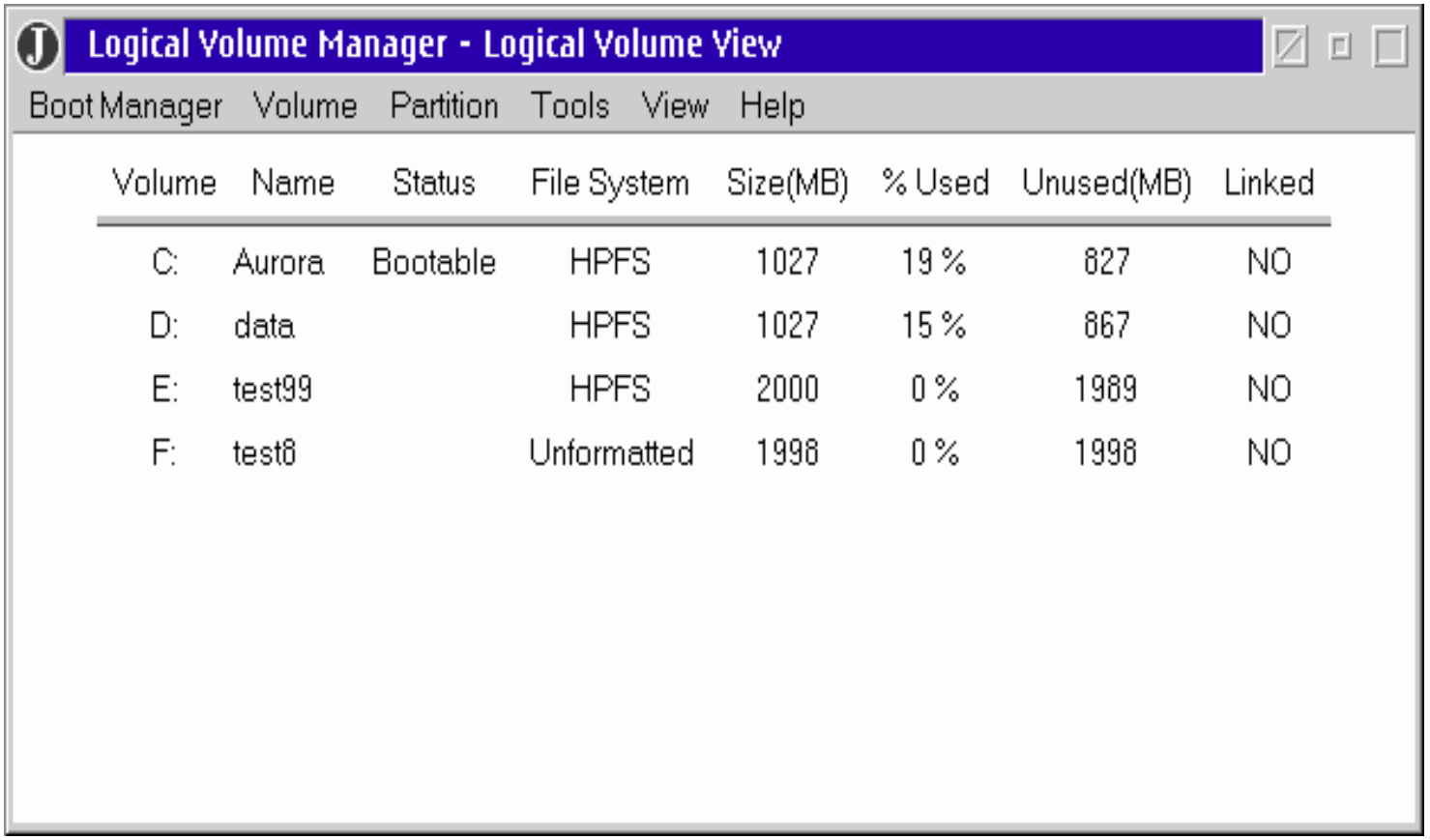
# Physical View via LVMGUI



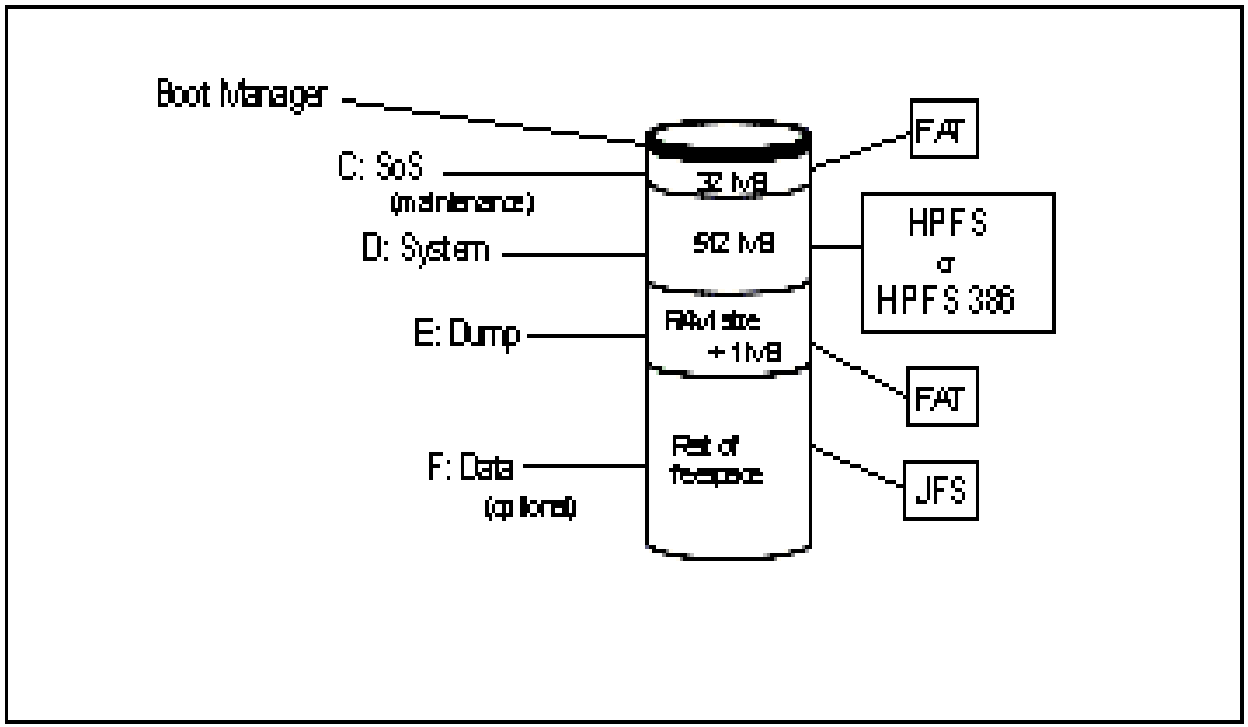
# Logical View via LVM



# Logical View via LVMGUI

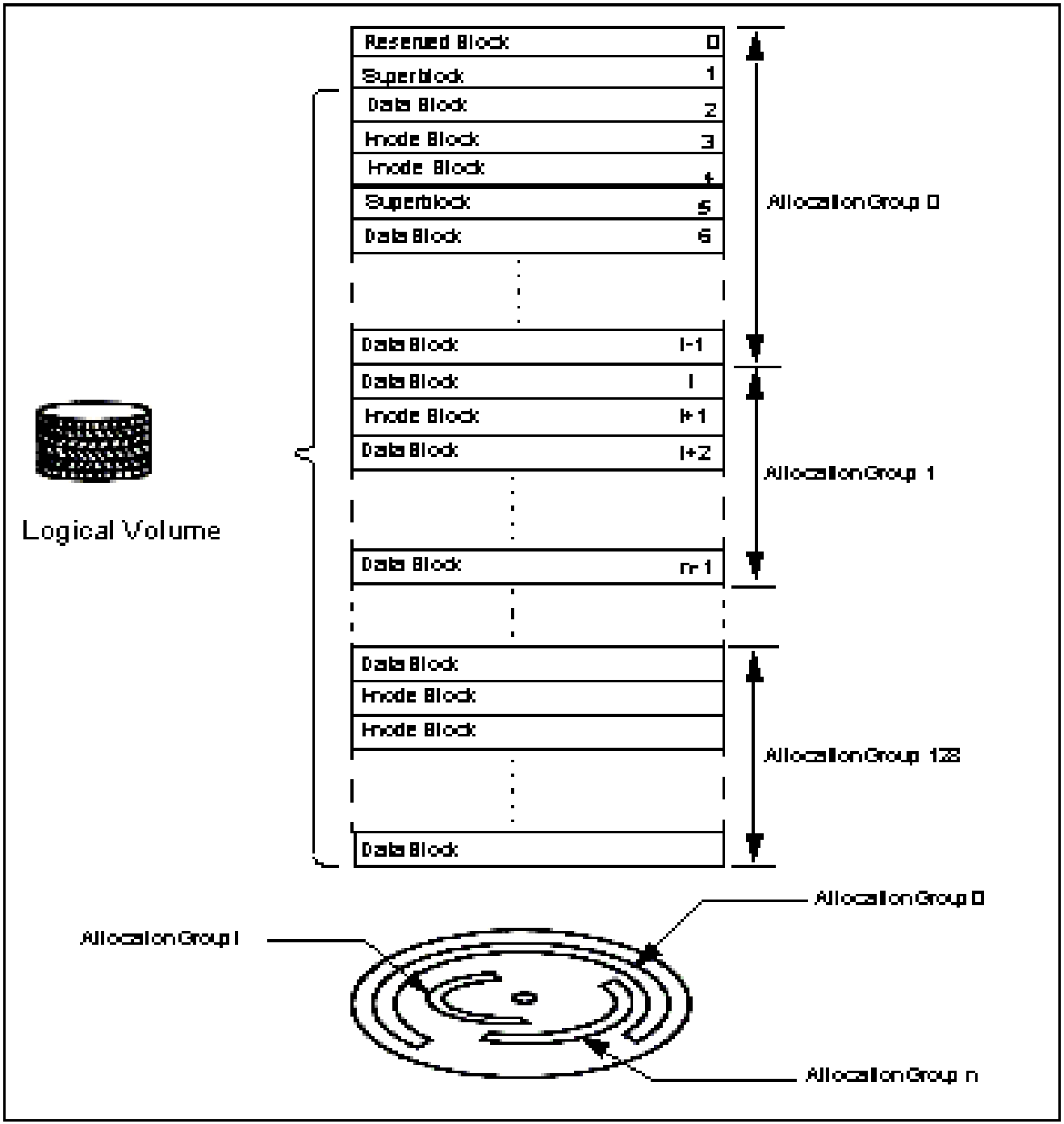


# Notes

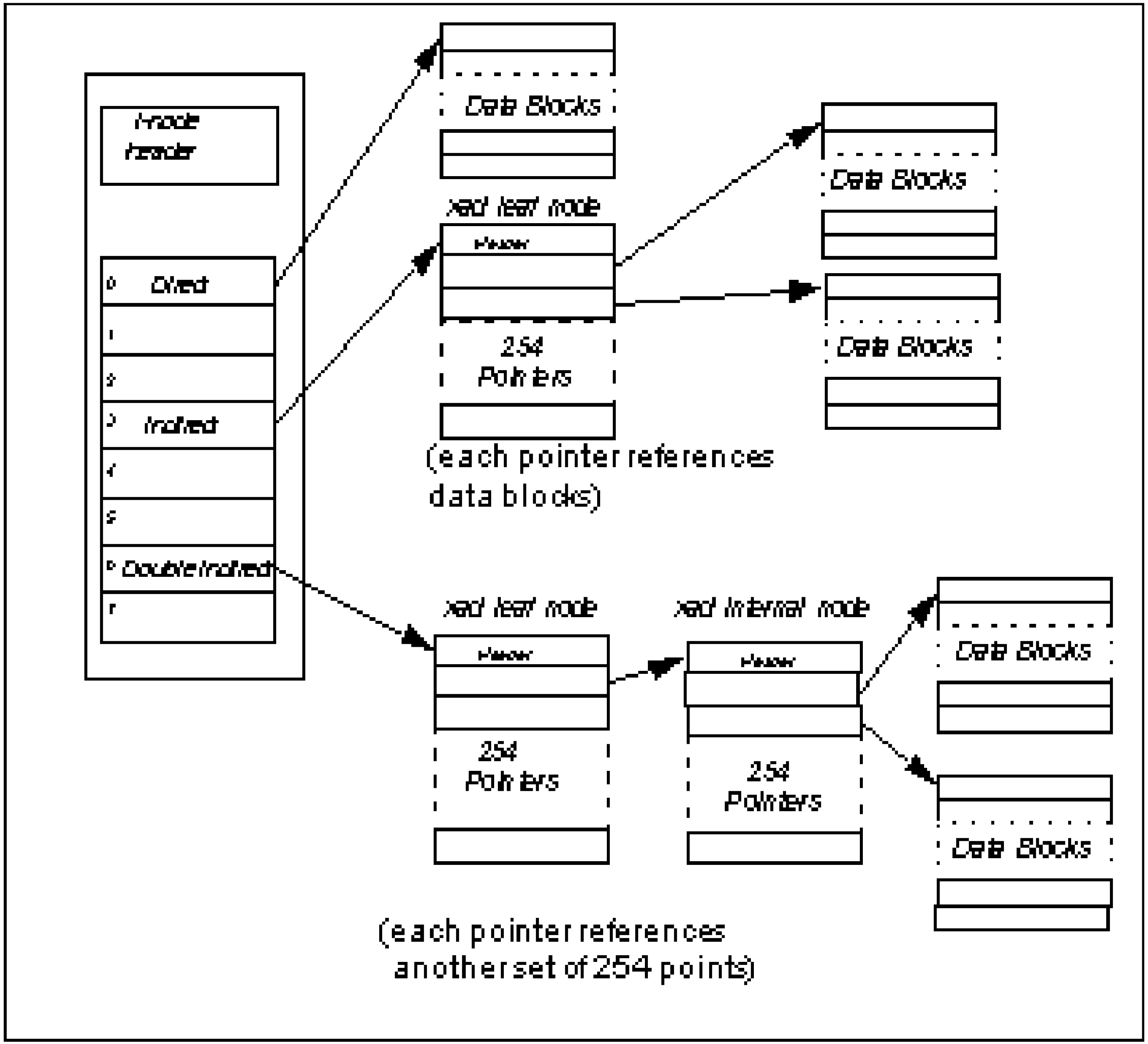



```
lvm /delete:all,volumes
lvm /delete:all,unused
lvm /delete:all,primary
lvm /delete:all,lvm
lvm /delete:all,logical
lvm /delete:all,compatibility
lvm /bootmgr:1
lvm /create:partition,SoS,1,32,primary,bootable
lvm /create:volume,compatibility,bootos2,c:,SoS,1,Sc
lvm /create:partition,system,1,512,logical,bootable
lvm /create:volume,compatibility,bootos2,d:,system,1,
lvm /create:partition,dump,1,129,logical,nonbootable,[ FS1 ],fromstart
lvm /create:volume,compatibility,noboot,e:,dump,1,du
lvm /create:partition,data,1,,logical,nonbootable,[ FS1 ],fromstart
lvm /create:volume,lvm,f:,data,1,data
```

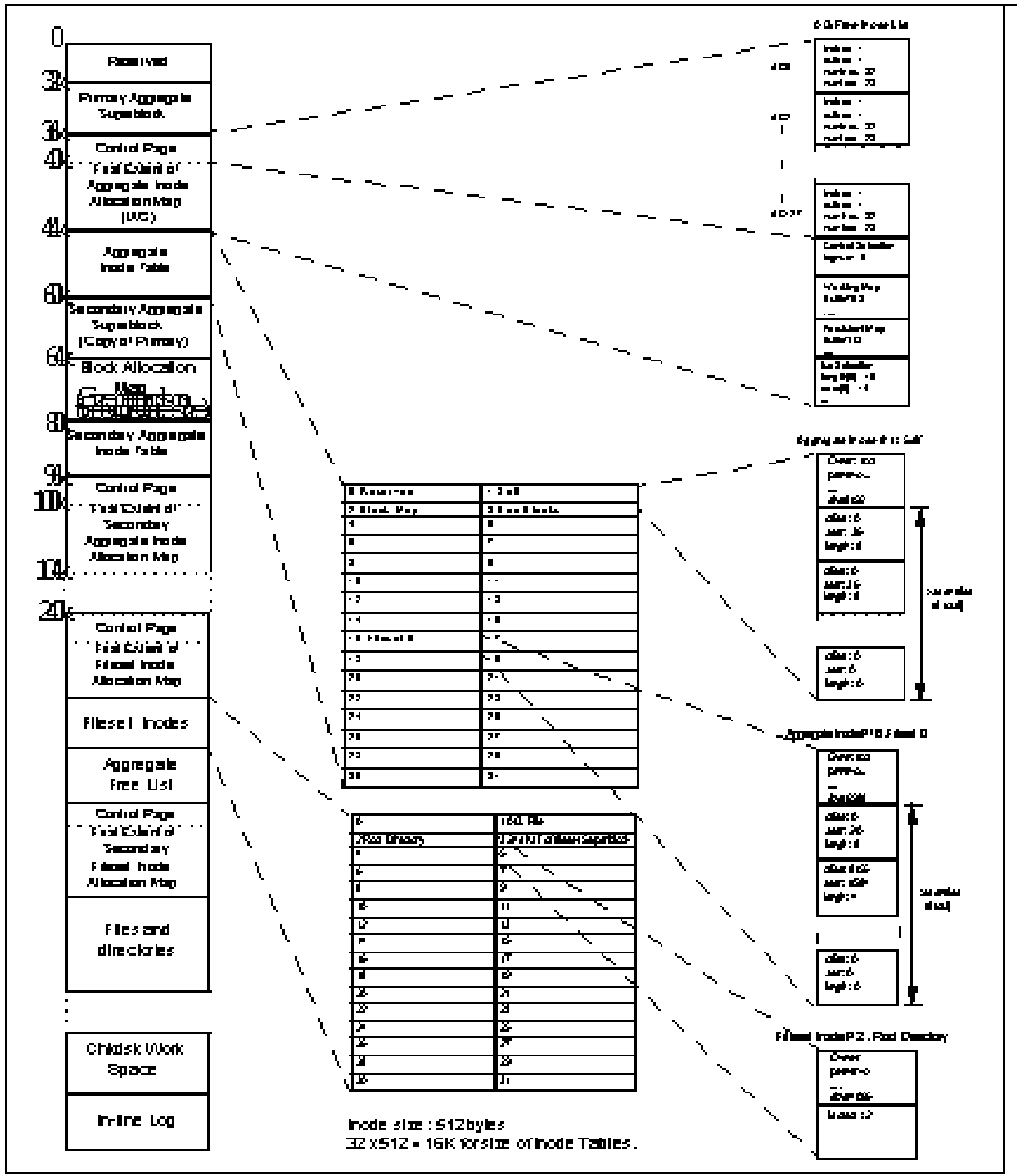
# JFS System Structure



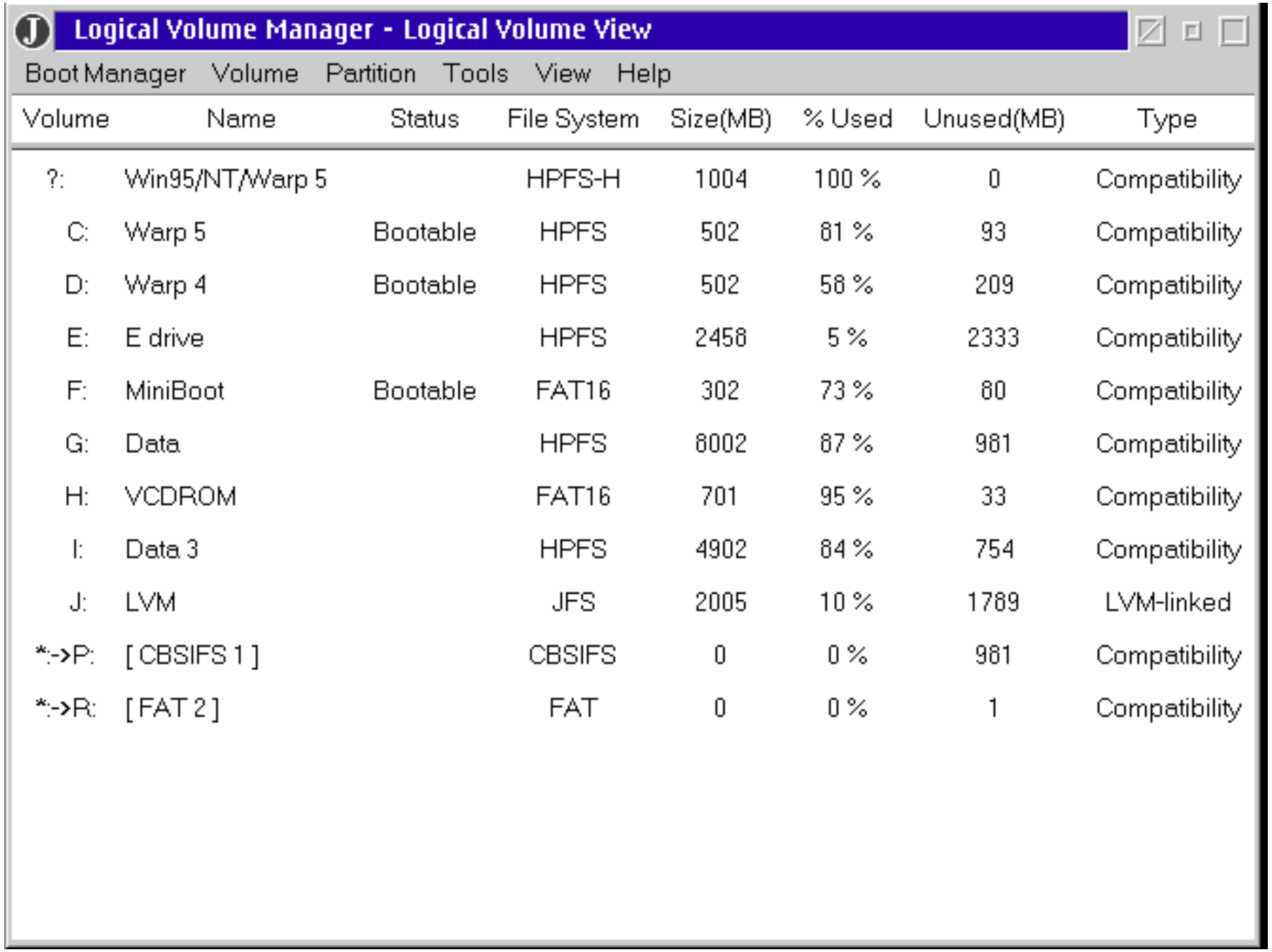
# I-Node


I-node header
Direct
Indirect
Double Indirect
Data Blocks
Data Blocks
Data Blocks
254 Pointers
(each pointer references data blocks)
254 Pointers
254 Pointers
Data Blocks
Data Blocks
(each pointer references another set of 254 points)

# Aggregate Structure



# Logical Volume View

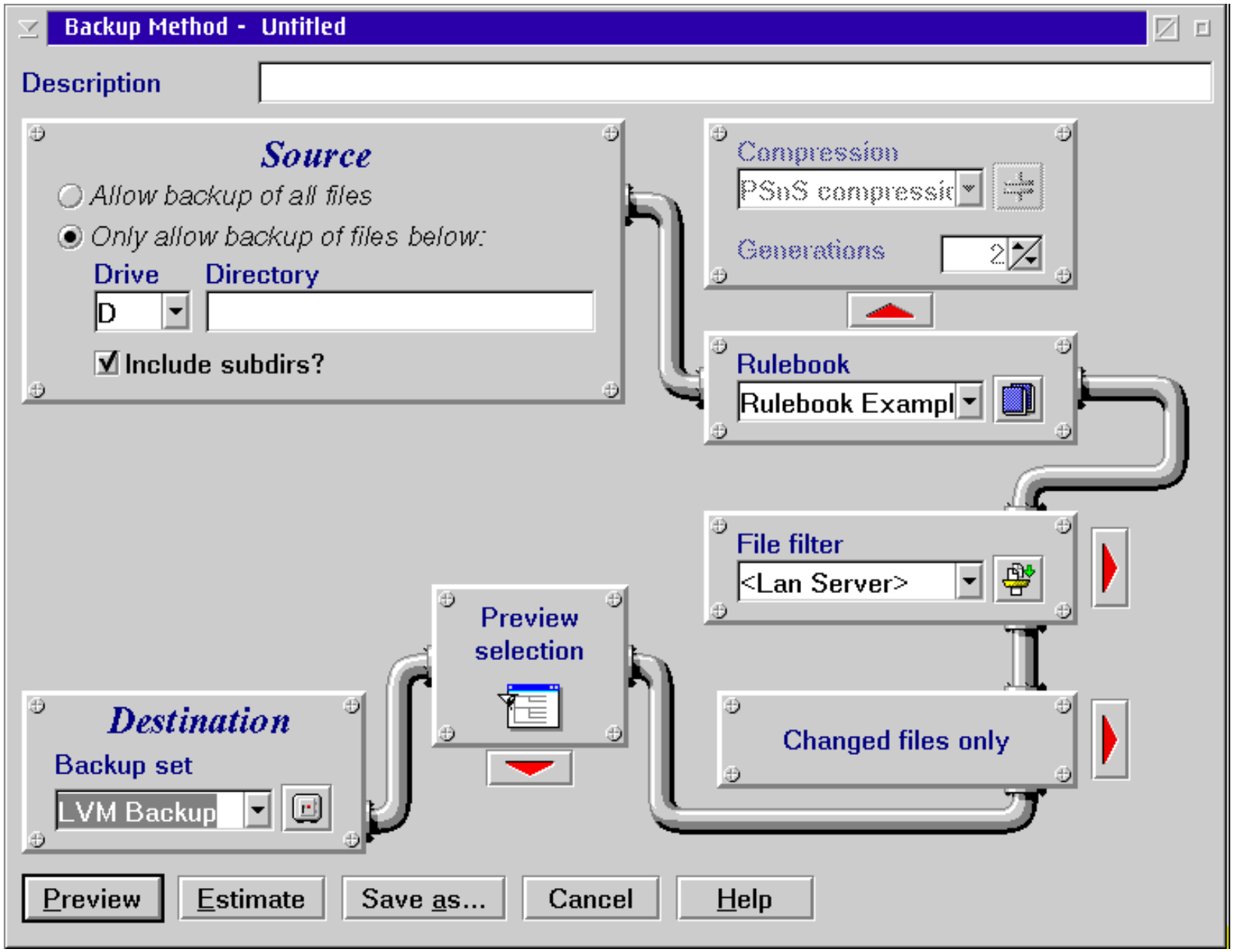



| Volume | Name | Status | File System | Size(MB) | % Used | Unused(MB) | Type |
|---|---|---|---|---|---|---|---|
| ?: | Win95/NT/Warp 5 | | HPFS-H | 1004 | 100 % | 0 | Compatibility |
| C: | Warp 5 | Bootable | HPFS | 502 | 81 % | 93 | Compatibility |
| D: | Warp 4 | Bootable | HPFS | 502 | 58 % | 209 | Compatibility |
| E: | E drive | | HPFS | 2458 | 5 % | 2333 | Compatibility |
| F: | MiniBoot | Bootable | FAT16 | 302 | 73 % | 80 | Compatibility |
| G: | Data | | HPFS | 8002 | 87 % | 981 | Compatibility |
| H: | VCDROM | | FAT16 | 701 | 95 % | 33 | Compatibility |
| I: | Data 3 | | HPFS | 4902 | 84 % | 754 | Compatibility |
| J: | LVM | | JFS | 2005 | 10 % | 1789 | LVM-linked |
| *:->P: | [ CBSIFS 1 ] | | CBSIFS | 0 | 0 % | 981 | Compatibility |
| *:->R: | [ FAT 2 ] | | FAT | 0 | 0 % | 1 | Compatibility |

# Personally Safe and Sound (PSnS)

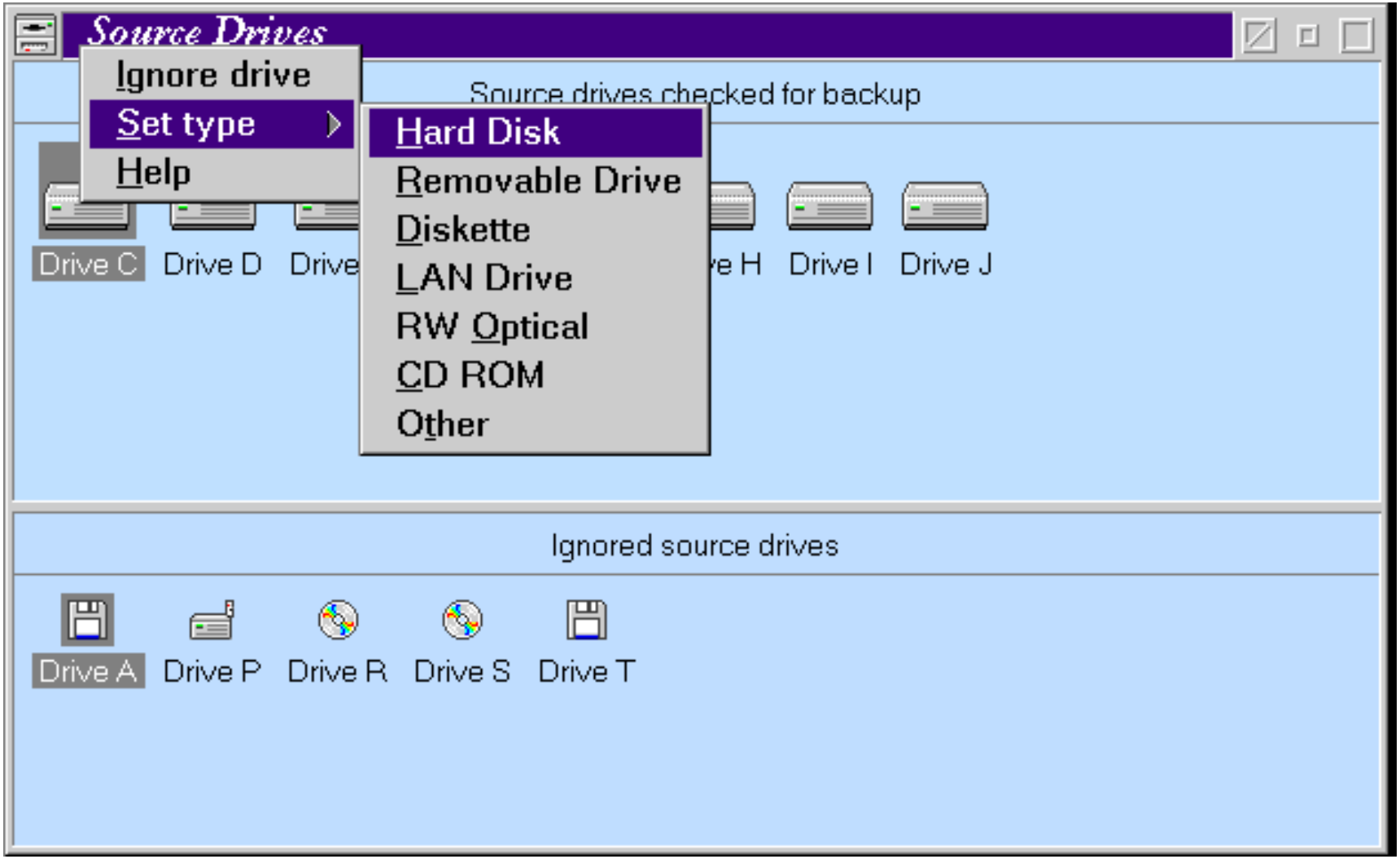
- Backup set
  - Logical collection of backed up files
  - Backup media defined
  - Separate for each project/data group
  - Dual device-capable
  - File fliters
  - Rule books
- Strategy
  - What data should I backup?
  - When and how often does backup occur?
  - Where should the backup be stored?
    - Fast access — Hard disk or LAN alias
    - Large capacity — Tape or Read/Write optical
    - Cheap storage — Diskette or Removable Drive
    - Centrally managed — ADSTAR

# Backup Method

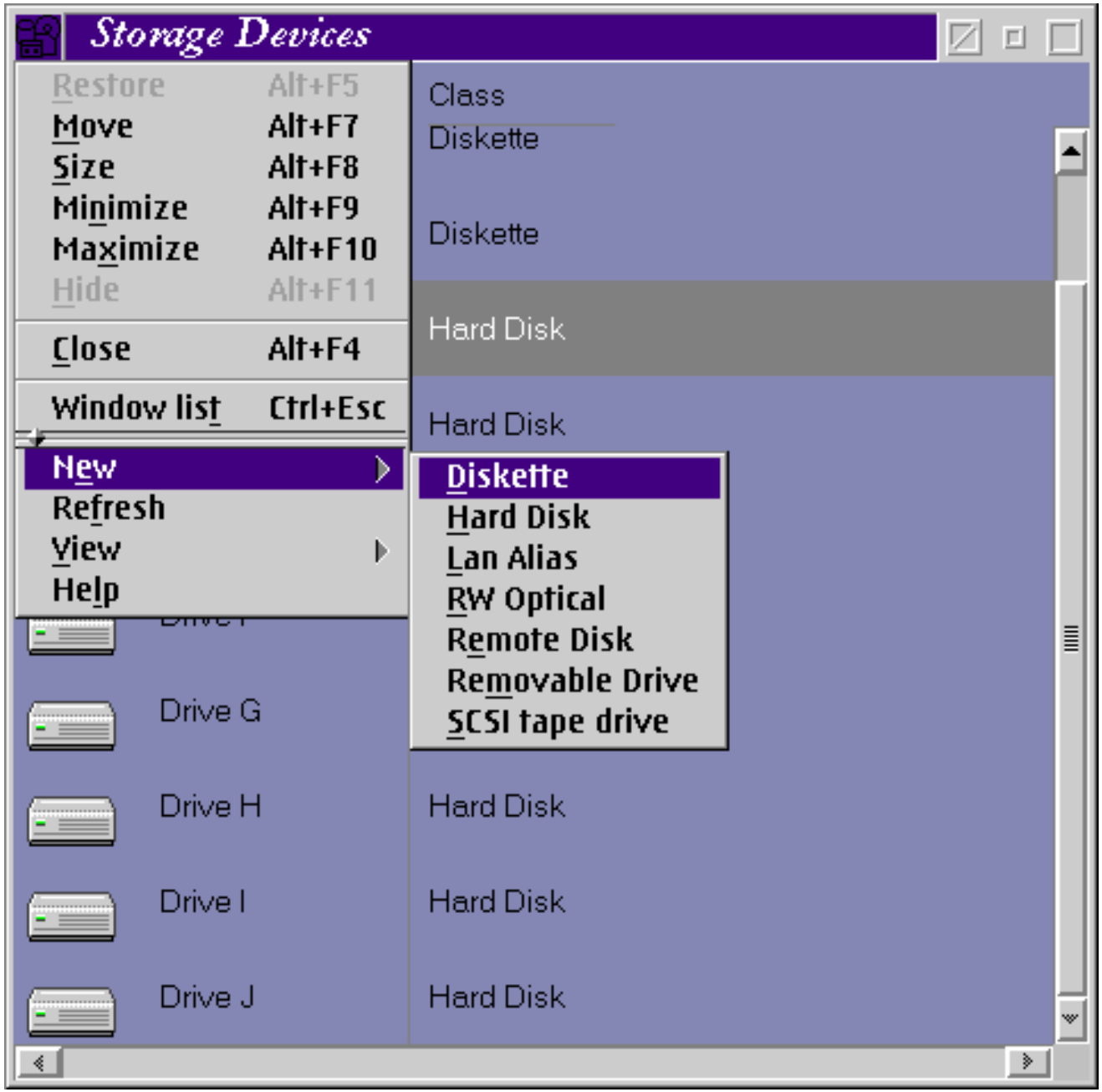



Refer to the online *PSnS Manual* for guidence and details.

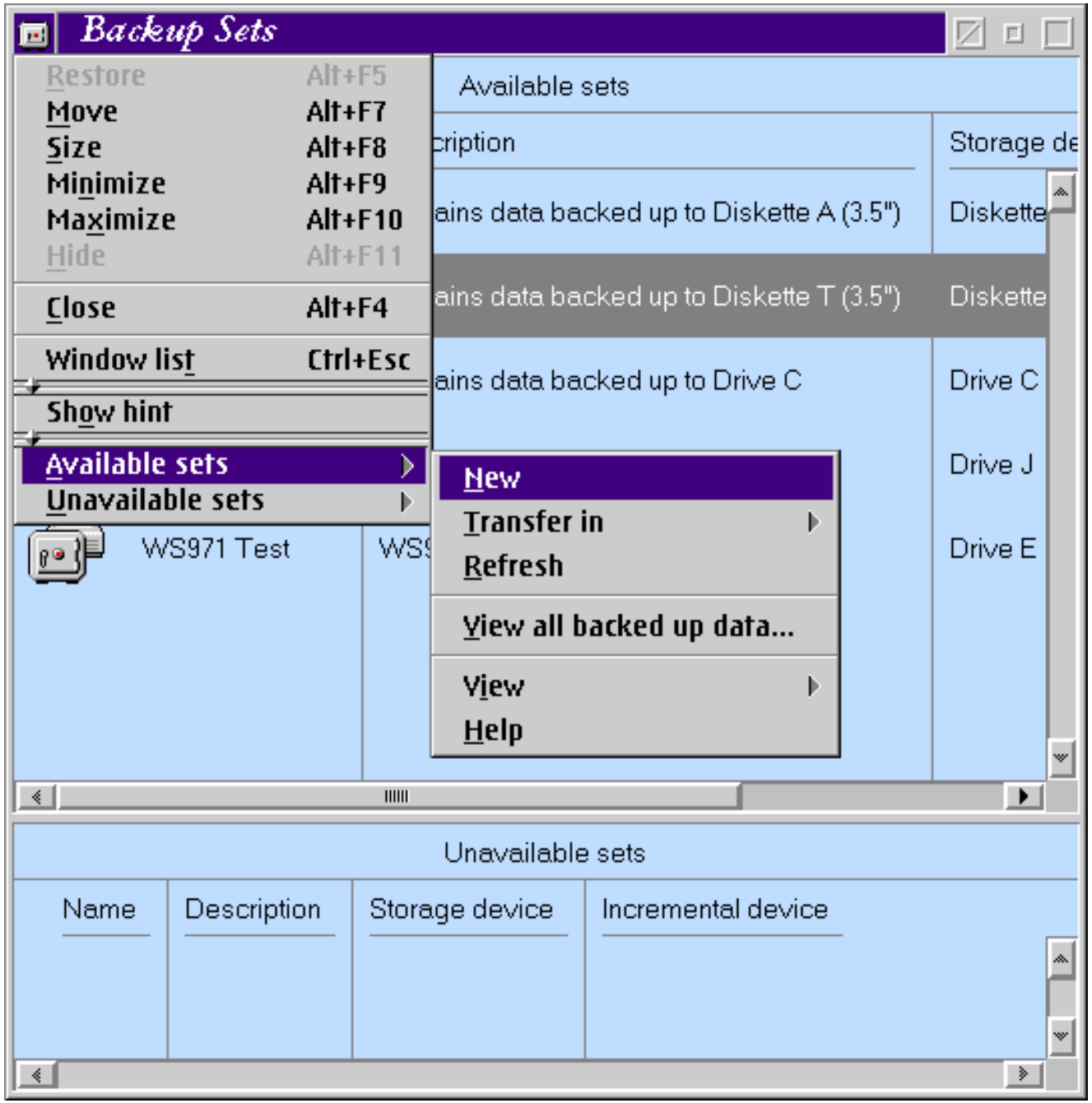
# Source Drives



# Storage Devices



# Backup Sets


Backup Sets
Restore Alt+F5
Move Alt+F7
Size Alt+F8
Minimize Alt+F9
Maximize Alt+F10
Hide Alt+F11
Close Alt+F4
Window list Ctrl+Esc
Show hint
Available sets
Unavailable sets
WS971 Test
Available sets
cription
Storage de
ains data backed up to Diskette A (3.5")
Diskette
ains data backed up to Diskette T (3.5")
Diskette
ains data backed up to Drive C
Drive C
Drive J
Drive E
New
Transfer in
Refresh
View all backed up data...
View
Help
Unavailable sets
Name
Description
Storage device
Incremental device

# Determine Security Guidelines

- Restrict access to the network
- Restrict access to data
- Restrict physical access to servers
- Local security
  - 386 HPFS servers
  - Local security access
    - LOCAL Group
    - User logged on
- Privileged programs
  - Run at startup
    - RUNPRIV.EXE
    - PRIVINIT.CMD
  - Run from the command line
    - PRIV <command>
    - Start PRIV <command>
    - Detach PRIV <command>

Note: STARTUP.CMD does *not* have any special privileges at startup.

# Network Applications

- Application as a Resource
  - Server stored
  - Client executed
  - Network managed (alias)
- Private applications
  - Created by the user for personal use
- Public applications
  - Created by adminstrator for general use
    - Install the application.
    - Create a directory alias for the application.
    - Create additional aliases other network resources
    - Assign access permissions for the aliases.
    - Define the application.
    - Customize application
    - Add the application to users or groups

# Considerations

- DLL locations
  - LIBPATH, BEGINLIBPATH, ENDLIBPATH
- User unique data
  - alias, home directory
- Environment variables

# Remote Execution

- Detachable programs
- runpath=
- NetRun service
- NET RUN <command.EXE>

Refer to Chapter 9 and Chapter 10 of the *Network Administrator's Guide*

# IP Address Assignment

- BOOTP
- BOOTPD
  - \ETC\SERVICE
  - \ETC\BOOTPTAB
- DHCPSTRT
- DHCPSD
  - DHCPCD.CFG
  - DHCPSD.CFG
  - DHCPMON.EXE
  - DHCPCD.EXE
  - DHCPSCPC
  - DADMGUI
- NAMED
  - DDNSAPC
  - DDNSCFG
  - DHCPCD.CFG
  - NSUPDATE

# File Transfer

- FTP
- FTPD
- TFTP
  - NetRC.DAT
  - TCPCFG2
  - TRUSERS
  - TFTPAUTH
- NFS
- NFSD
  - TCPCFG2
  - "exports" file
  - TCPNBK.LST
  - MOUNT / UNMOUNT
  - SHOWEXP
  - SHOWMOUN

# TCP/IP Printing

- LPD
- LPQ
- LPR
- LPRM
- LPRMON
- LPRPORTD

# Remote Access

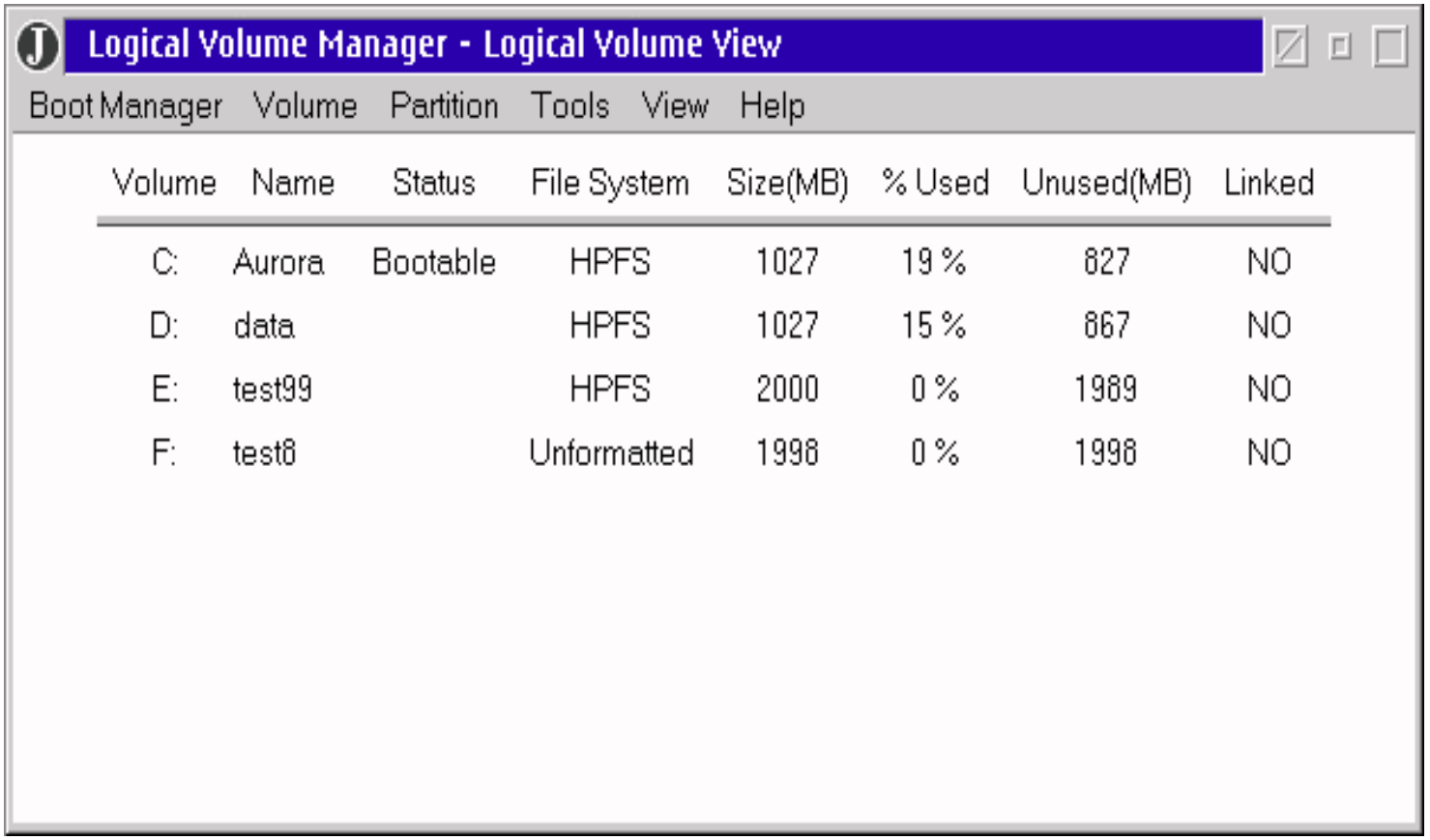
- TELNET
- TELNETD
  - NETSP
  - "SHELL"
- REXEC
- REXECD
- RSH
  - RHOSTS
  - TCPCFG2

# Unit Summary

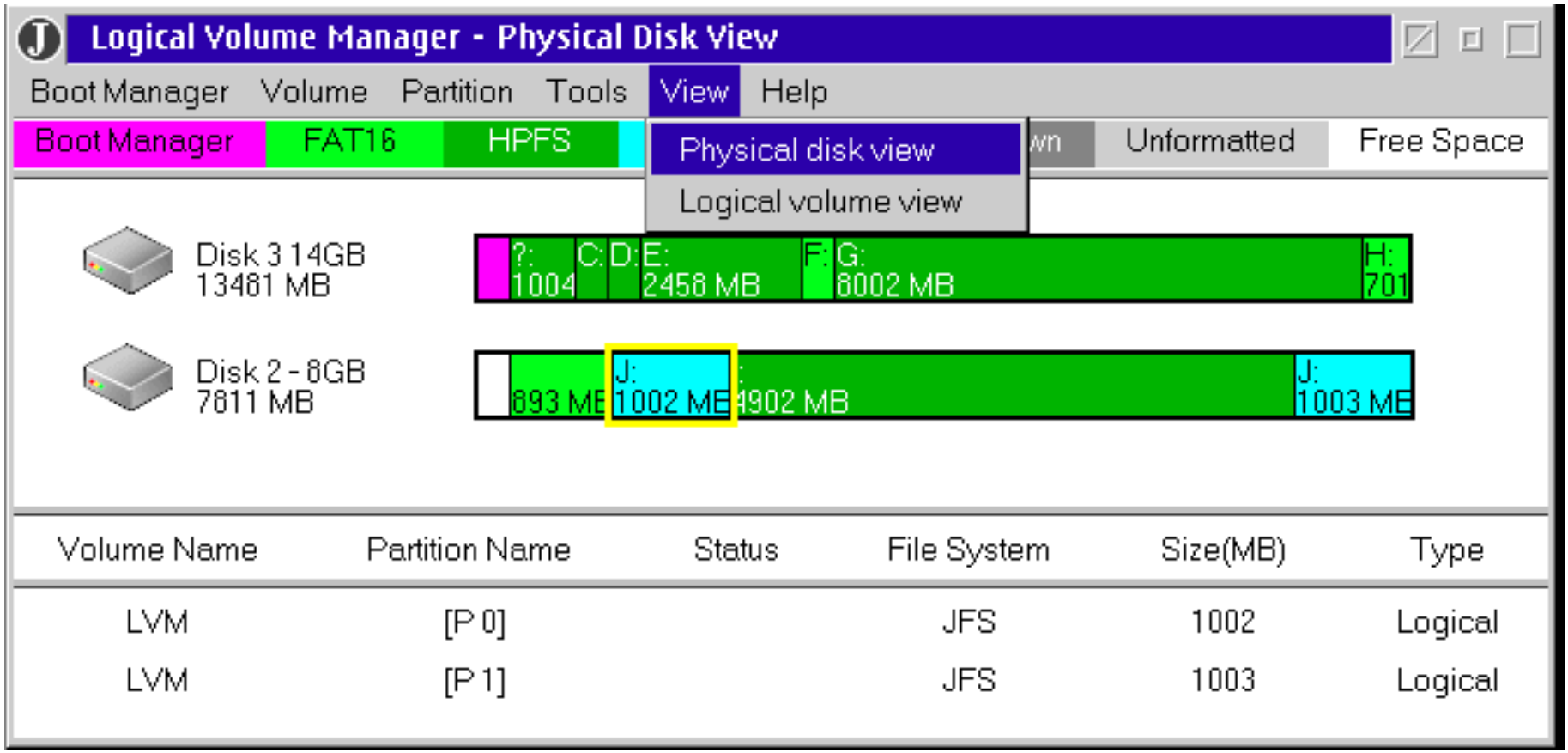
You should now be able to:

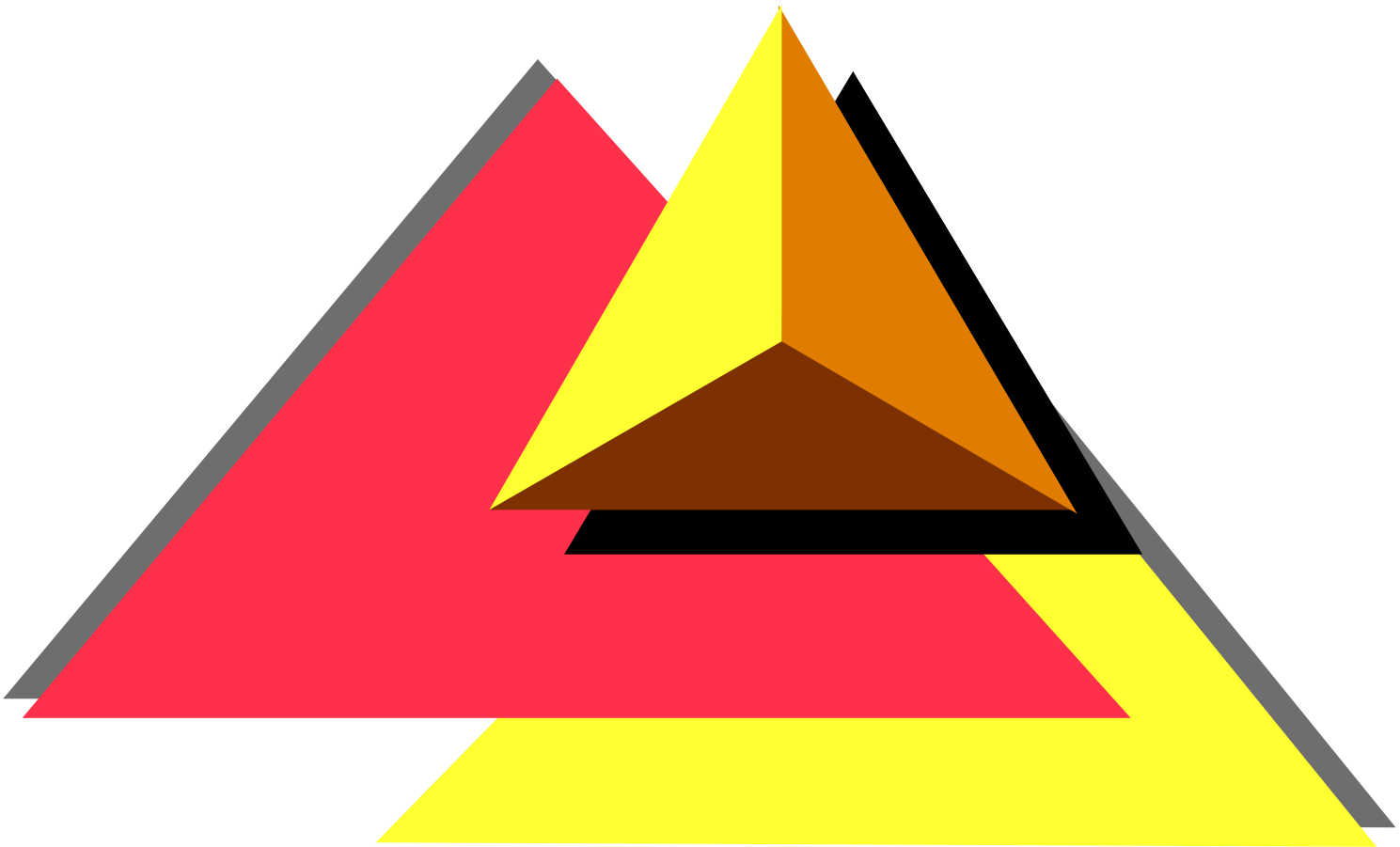
- Perform initial network administration tasks checklist
- Start, stop, and pause server services
- Access the network from various systems
- Manage domains
- Define and share network resources
- Create and apply access control profiles
- Manage network printing
- Define and manage users and groups
- Manage and add volumes and partitions
- Implement backup and recovery
- Manage network security
- Create and manage server applications

# Logical View via LVMGUI



# Physical Disk View





# Administering Installation Specific Tasks in OS/2 Warp Server for e-business

# Objectives

After completing this unit, you should be able to:

- Manage file and DCDB replication
- Tune a OS/2 Warp Server for e-business network
- Perform additional network task
- Perform multiple Client/Server integration
- Understand how to install, configure, and manage remote IPL services

# Setting Up the Exporter

**REPL.INI - in first-level directory**

**extent = FILE/TREE <how far>**

**integrity = FILE/TREE <how stable>**

**User ID and password for importer**

**IBMLAN.INI**

**replicate=export**

**exportpath=absolute path to the exporting trees**

**exportlist=importer receiving updates**

**srvservices**

**guardtime=0-interval/2**

**interval=1-60**

**pulse=1-10**

**random=1-120**

**REPLICATOR to wrkservices section.**

**Access profile for export directory (tree)**

**Importer access to export directory**

**NET START REPLICATOR**

# Setting Up the Importer

**First Level Import directory**

**Single import path**

**IBMLAN.INI**

**replicate=import**
**importpath=absolute path to the importing tree**
**importlist=exporter1;exporter2 sending updates**
**tryuser=yes**
**REPLICATOR to wrkservices section.**
**logon=importer's logon ID**
**password=importer's password**

**NET START REPLICATOR**

# DCDB Replication

- Subset of Replication

# DCDB Exporter

REPL.INI in each subdirectory of IBMLAN\DCDB

extent = tree

integrity = file

Automatic management of USERLOCK.xxx

Don't create or remove

IBMLAN.INI (DCDBREPL section)

interval = 5

guardtime = 2

pulse = 3

random = 60

Add DCDBREPL to srvservices

# DCDB Importer

**IBMLAN.INI (DCDBREPL section)**

**tryuser = yes**
**logon = userid  (administrator)**
**password = password**

**Add DCDBREPL to srvservices**

**Verify the following subdirectories exist:**

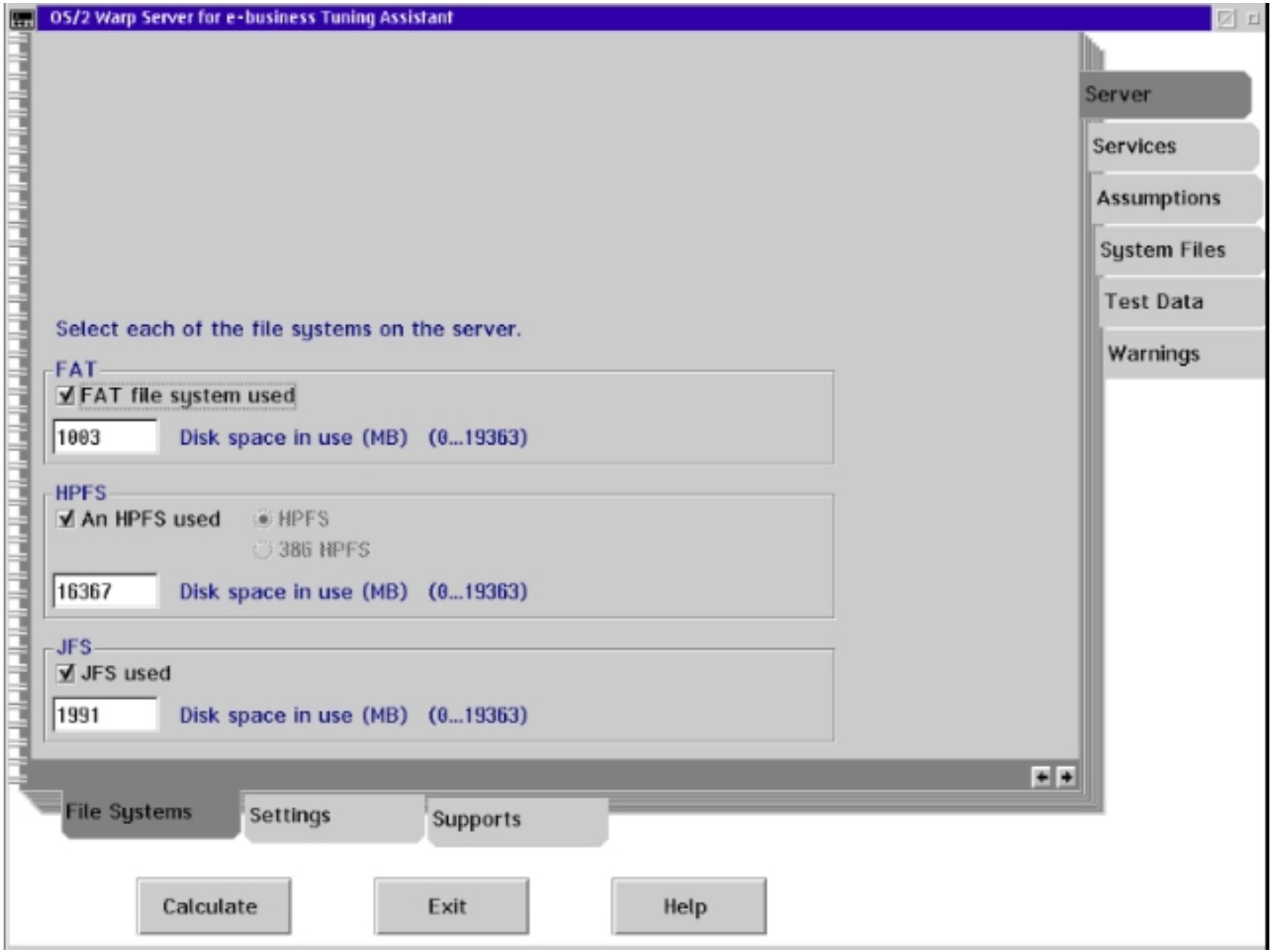
**C:\IBMLAN\DCDB\USERS**
**C:\IBMLAN\DCDB\DEVICES**
**C:\IBMLAN\DCDB\PRINTERS**
**C:\IBMLAN\DCDB\APPS**
**C:\IBMLAN\DCDB\FILES**
**C:\IBMLAN\DCDB\LISTS**
**C:\IBMLAN\DCDB\DATA**

**NET STOP DCDBREPL**
**NET START DCDBREPL**

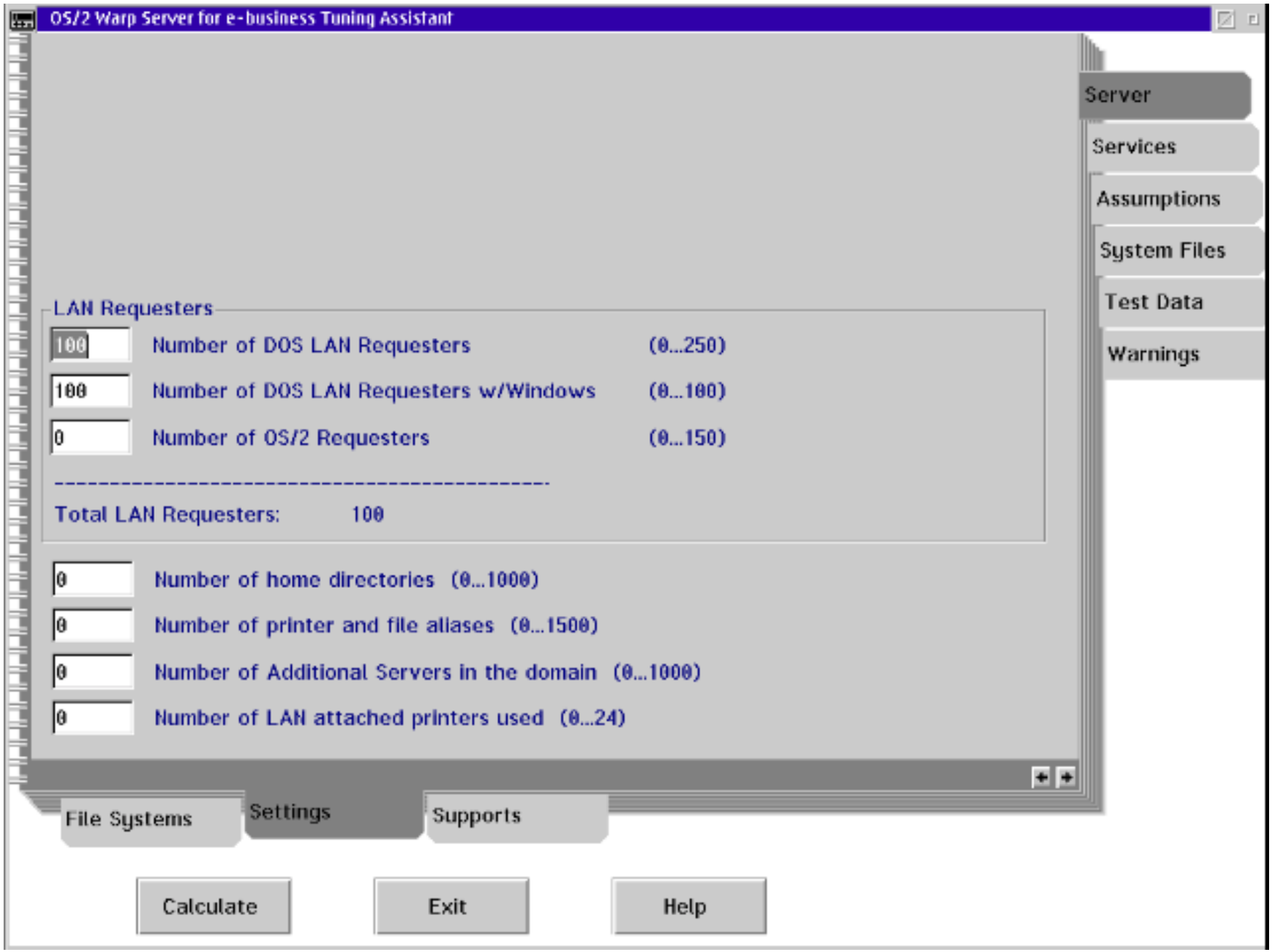
# Tuning

- Capacity Tuning
- Performance Tuning
- Extensive Online reference
- *Performance Tuning Guide*
- "Still much of an art"
- IBM Tuning Assistant

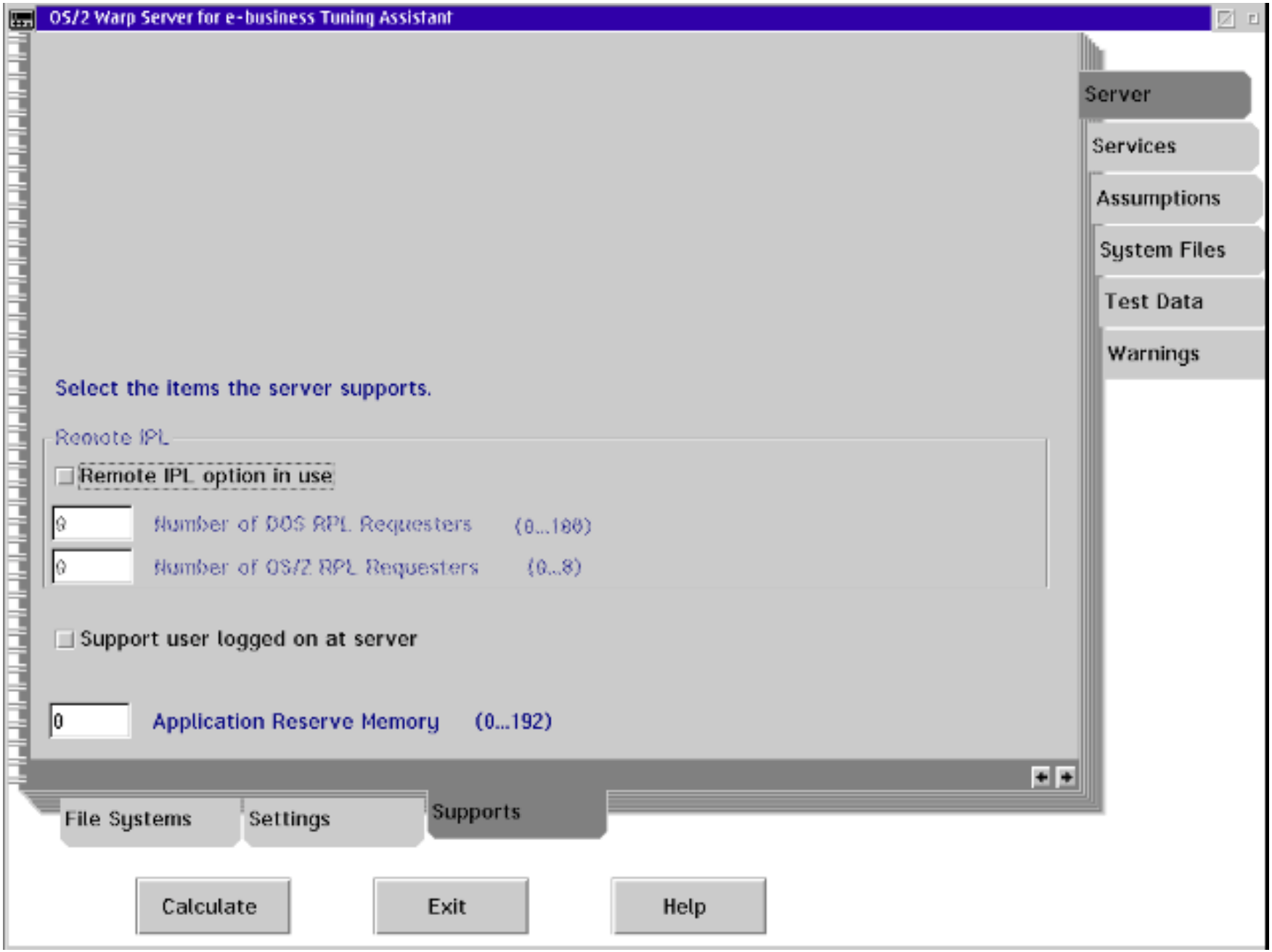
# Tuning Assistant (1 of 11)



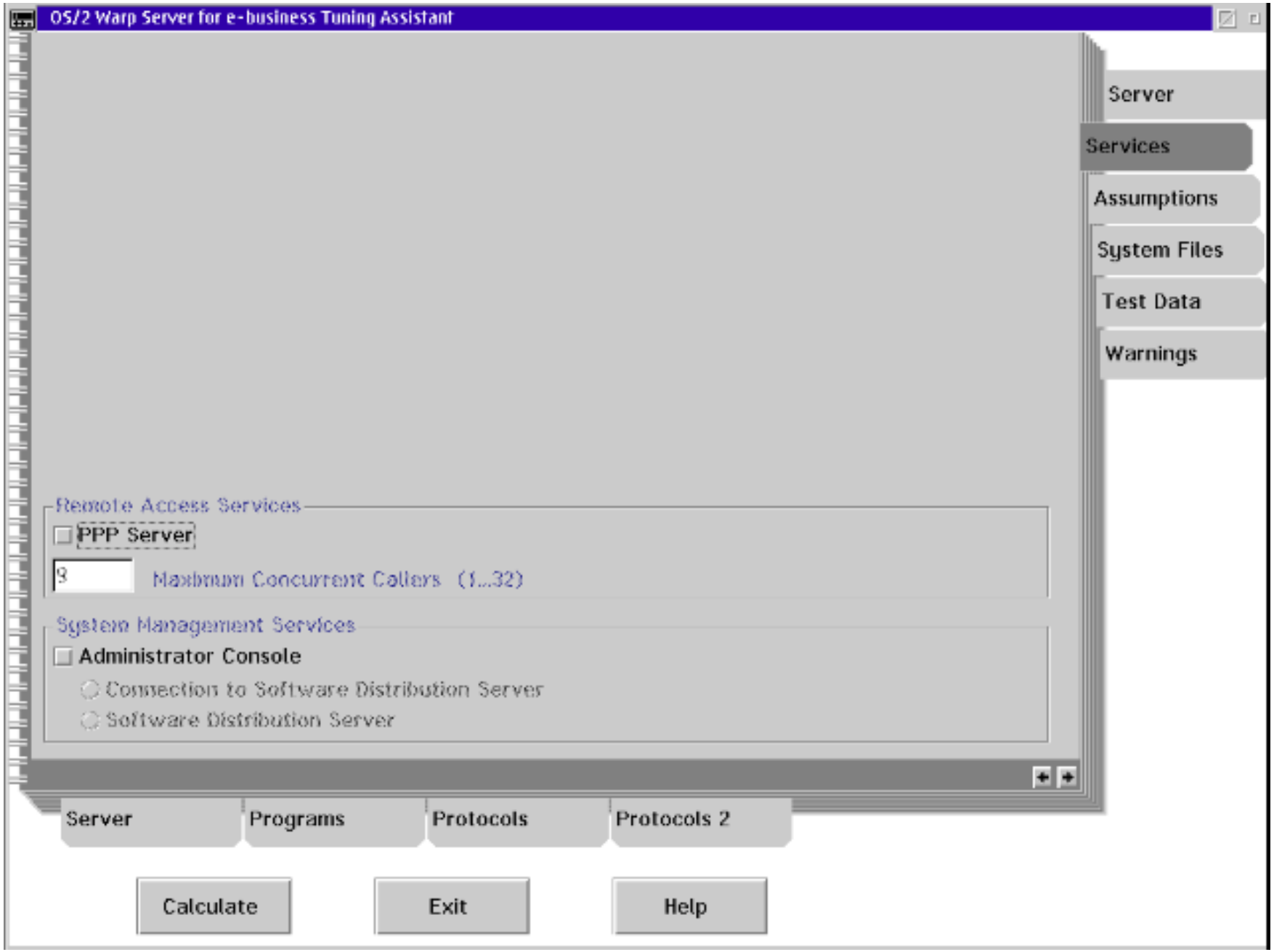
# Tuning Assistant (2 of 11)



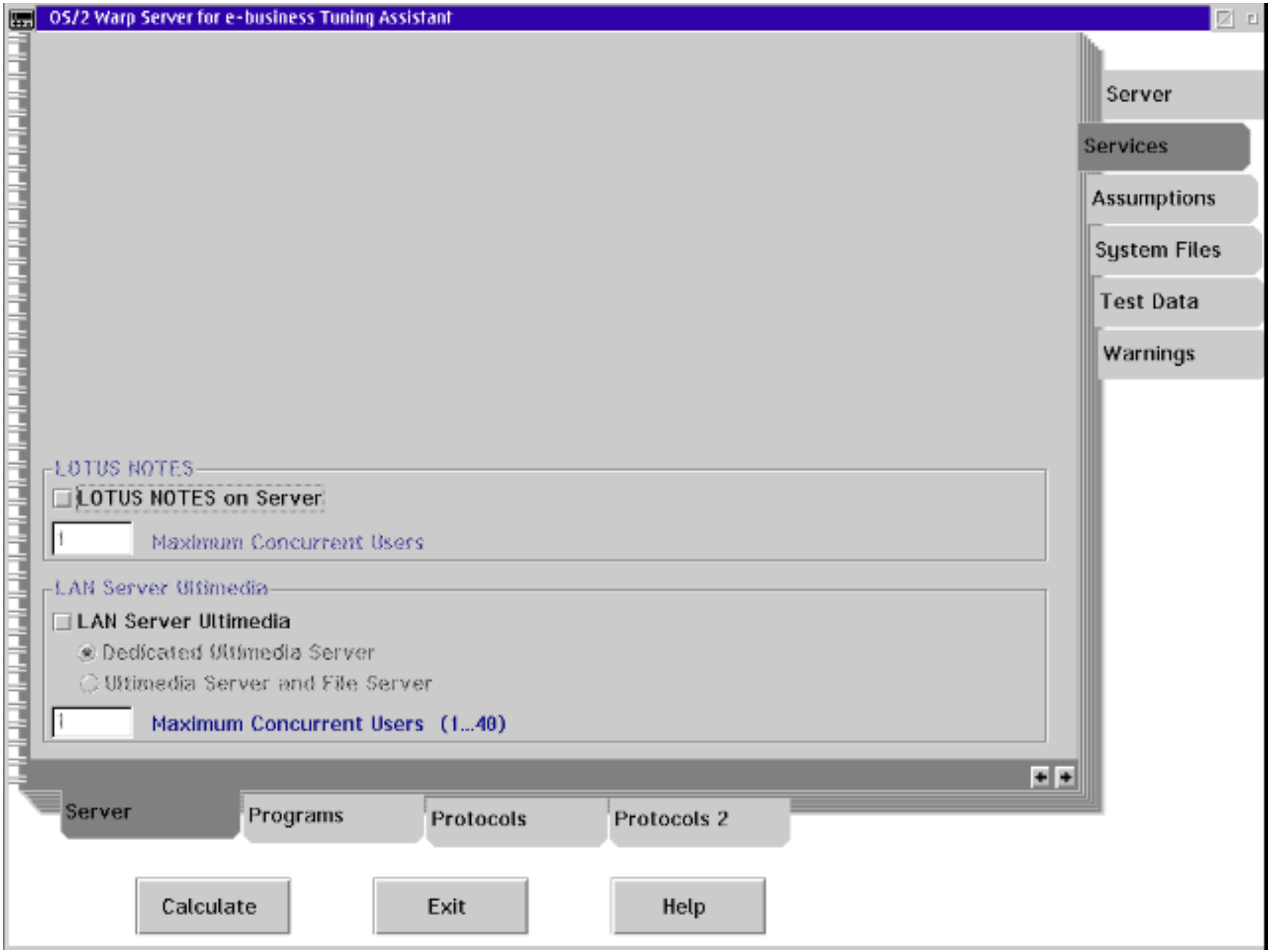
# Tuning Assistant (3 of 11)



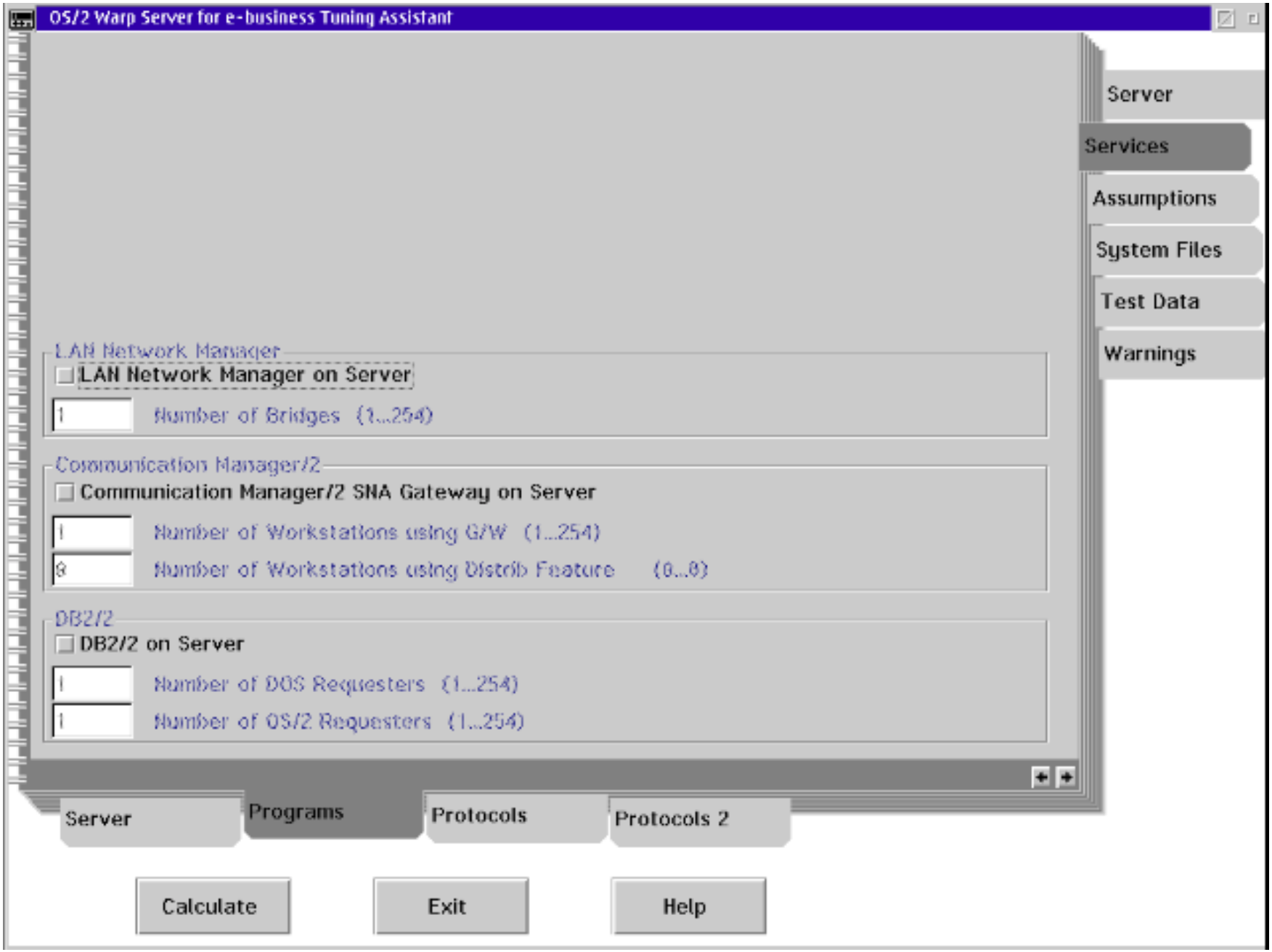
# Tuning Assistant (4 of 11)



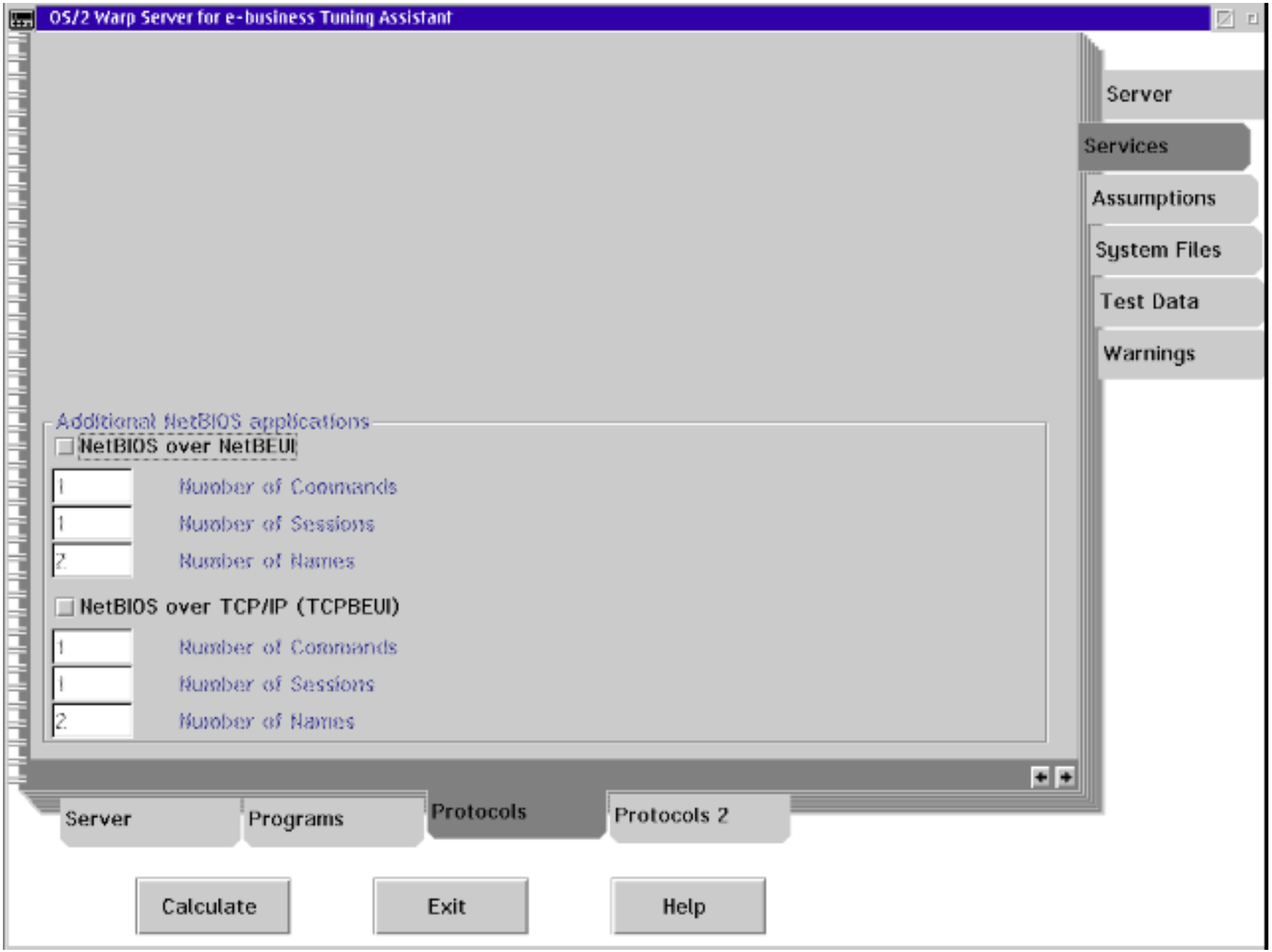
# Tuning Assistant (5 of 11)



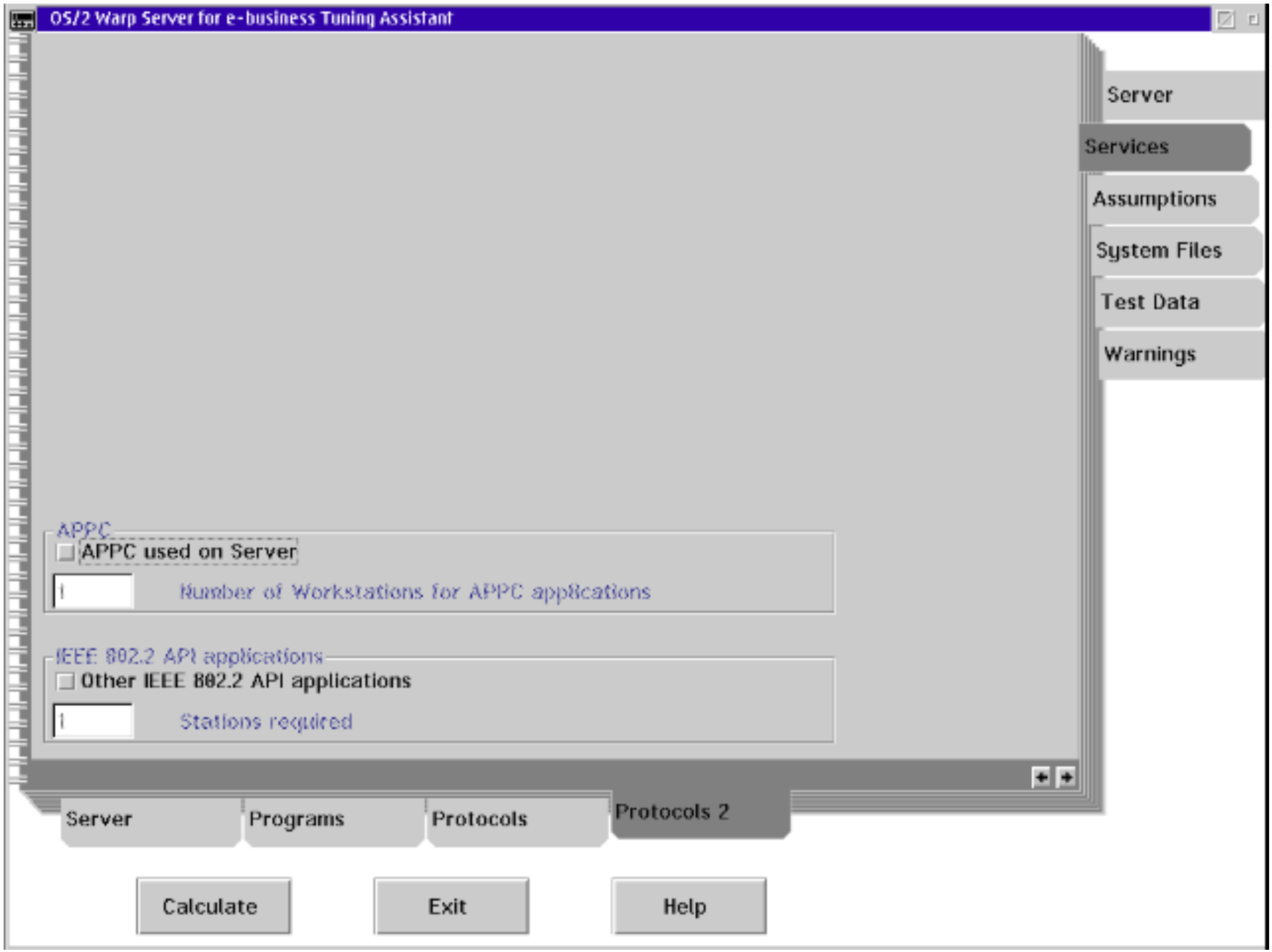
# Tuning Assistant (6 of 11)



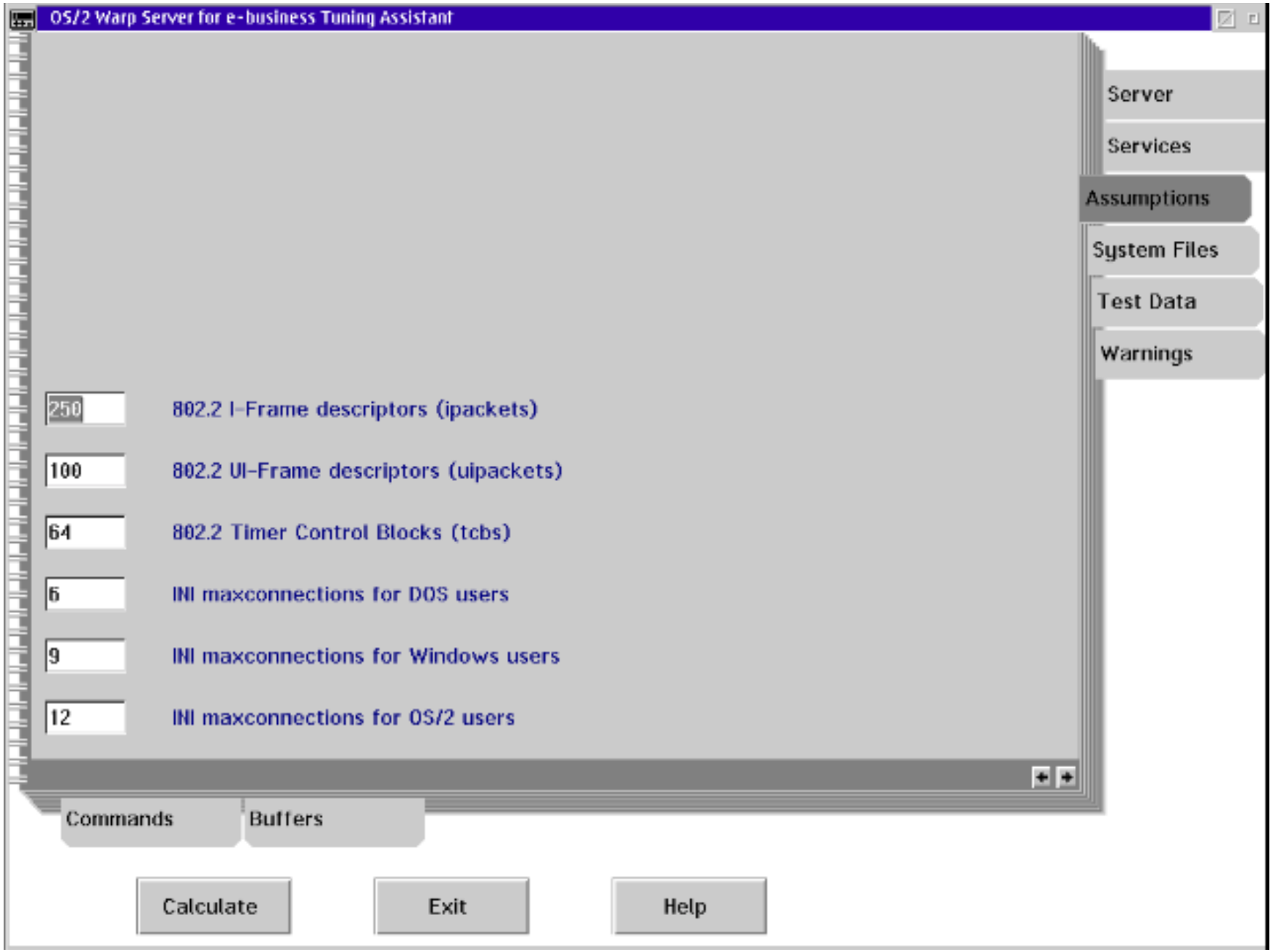
# Tuning Assistant (7 of 11)



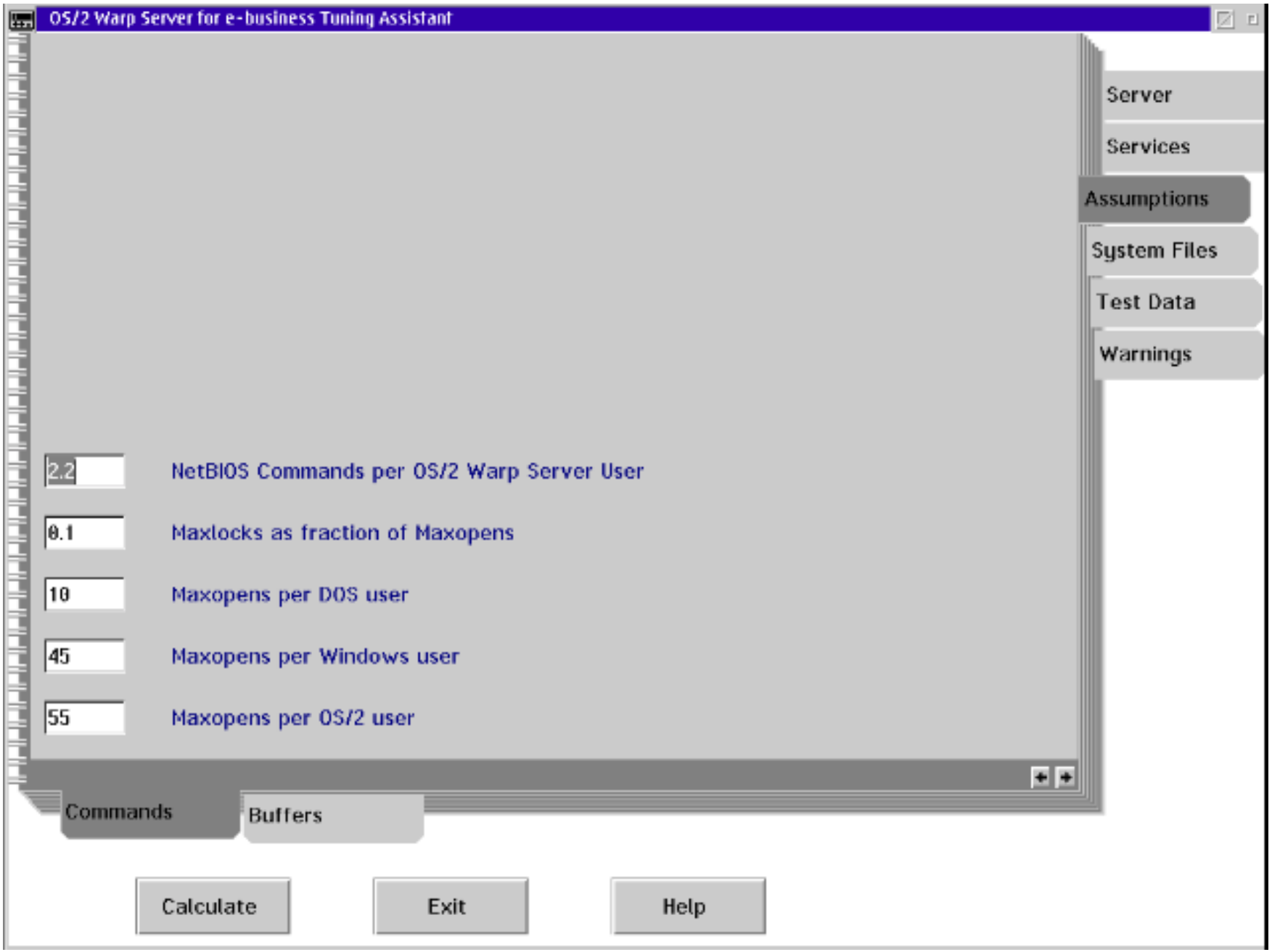
# Tuning Assistant (8 of 11)



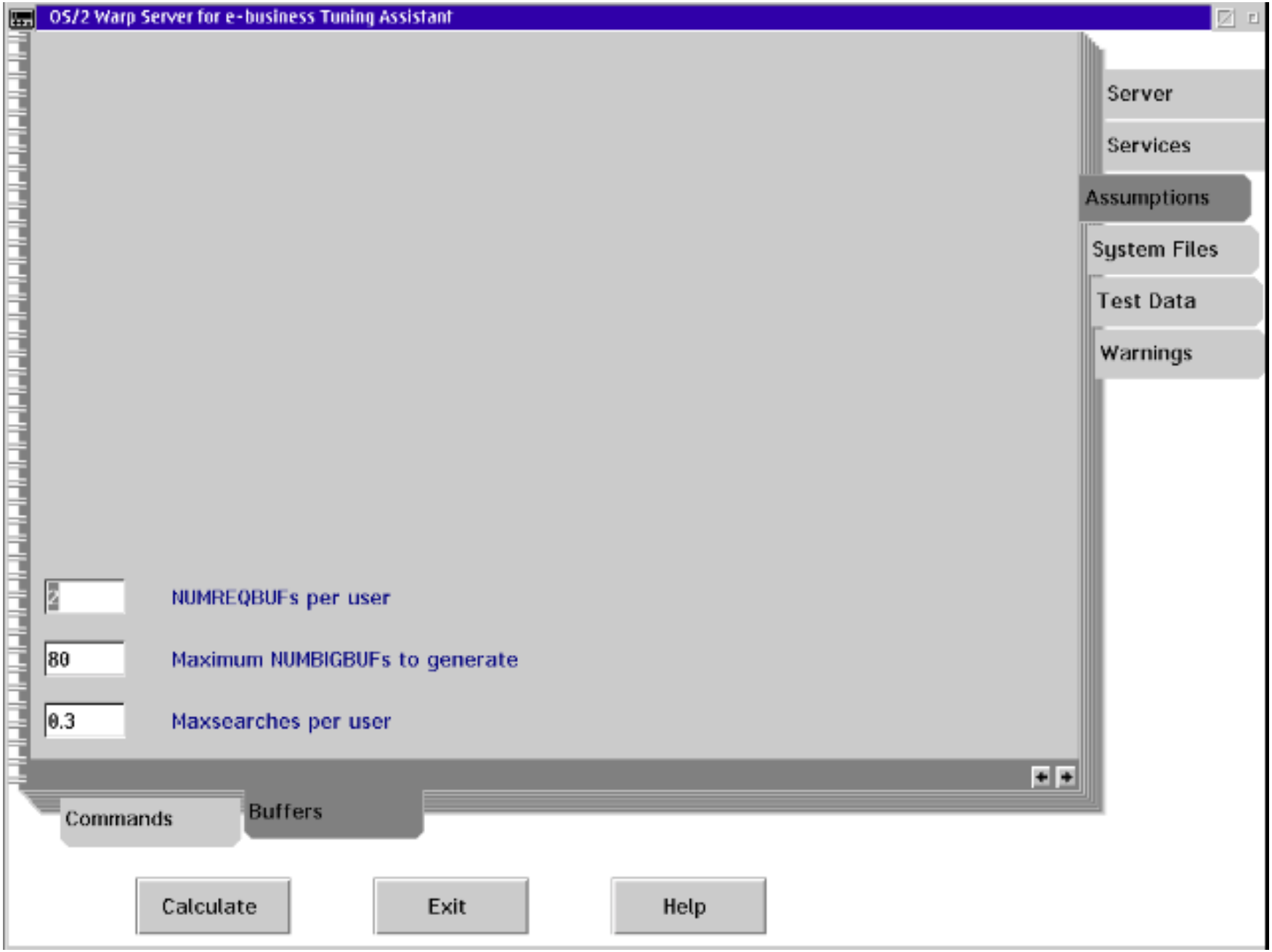
# Tuning Assistant (9 of 11)



# Tuning Assistant (10 of 11)



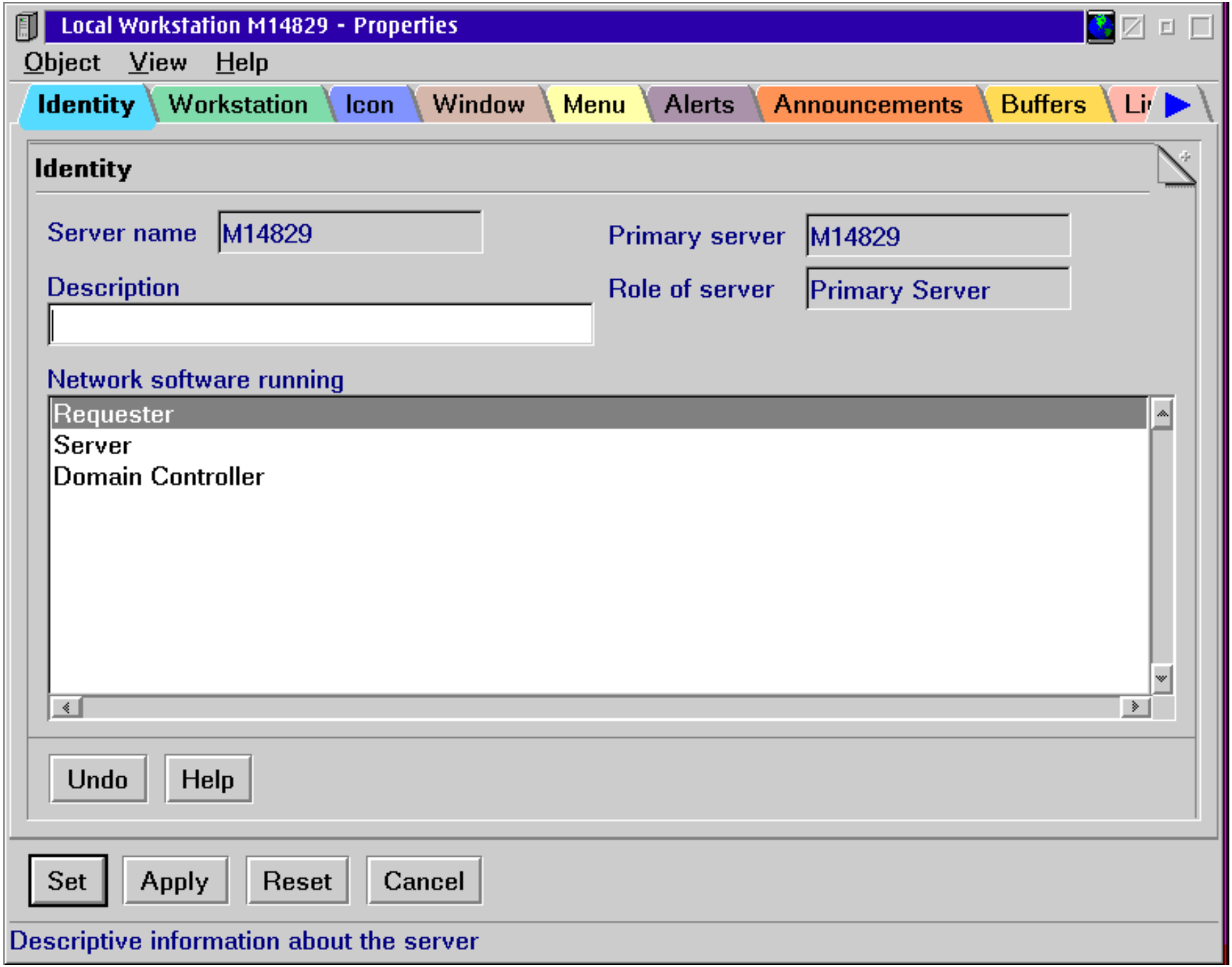
# Tuning Assistant (11 of 11)



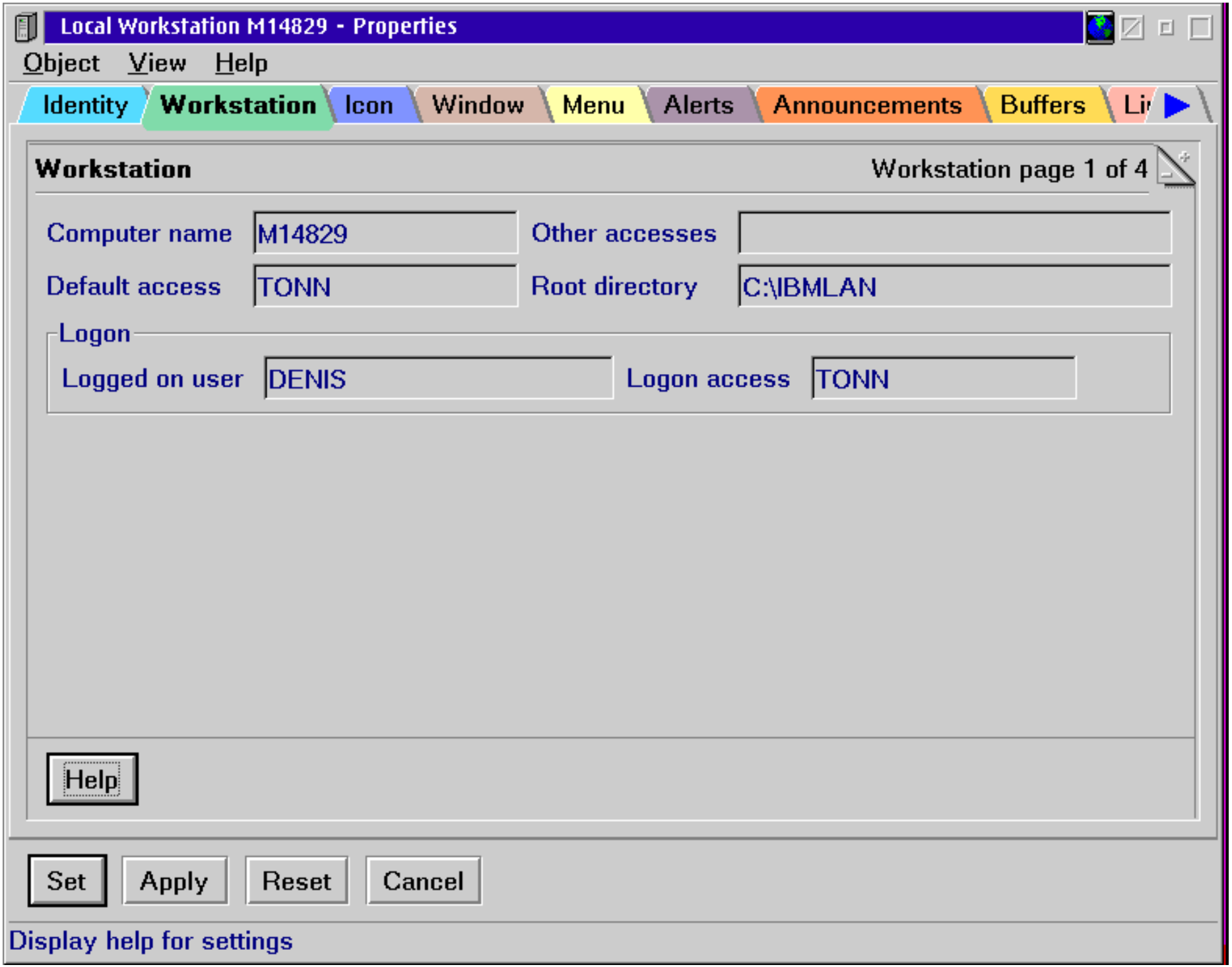
# Parameters for Servers and Client

- IBMLAN.INI
- PROTOCOL.INI

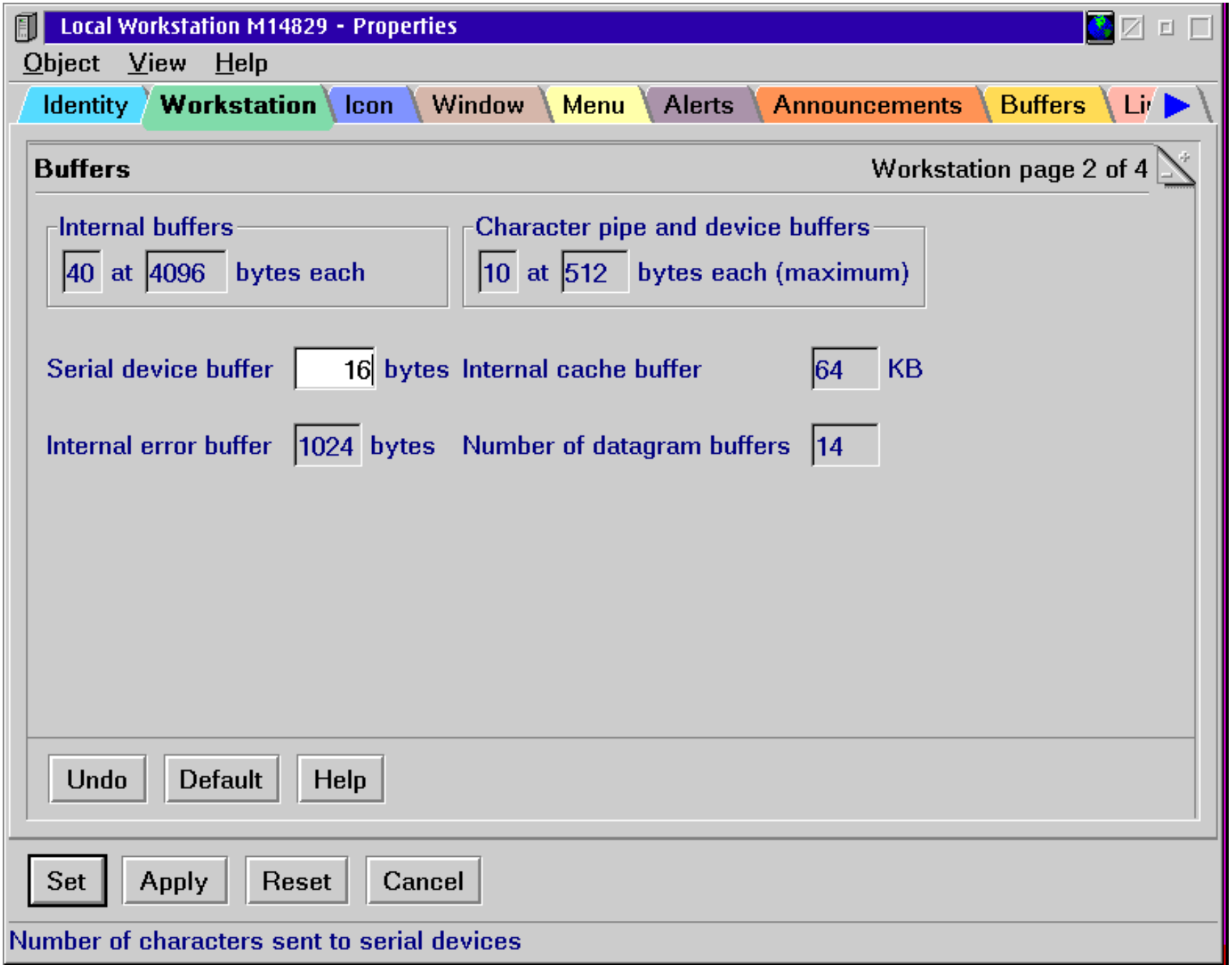
# LAN Administration GUI (1 of 2)



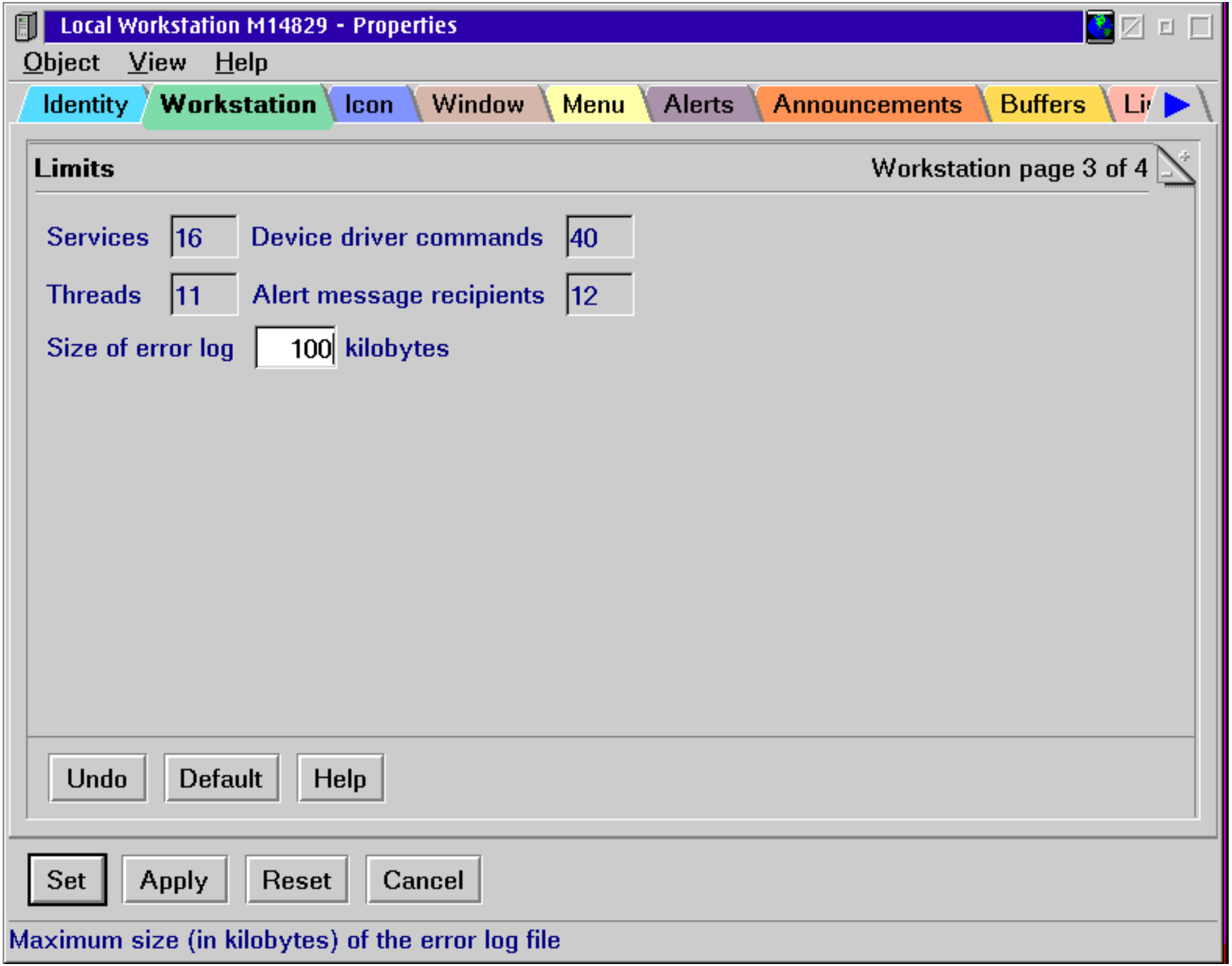
# LAN Administration GUI (2 of 2)



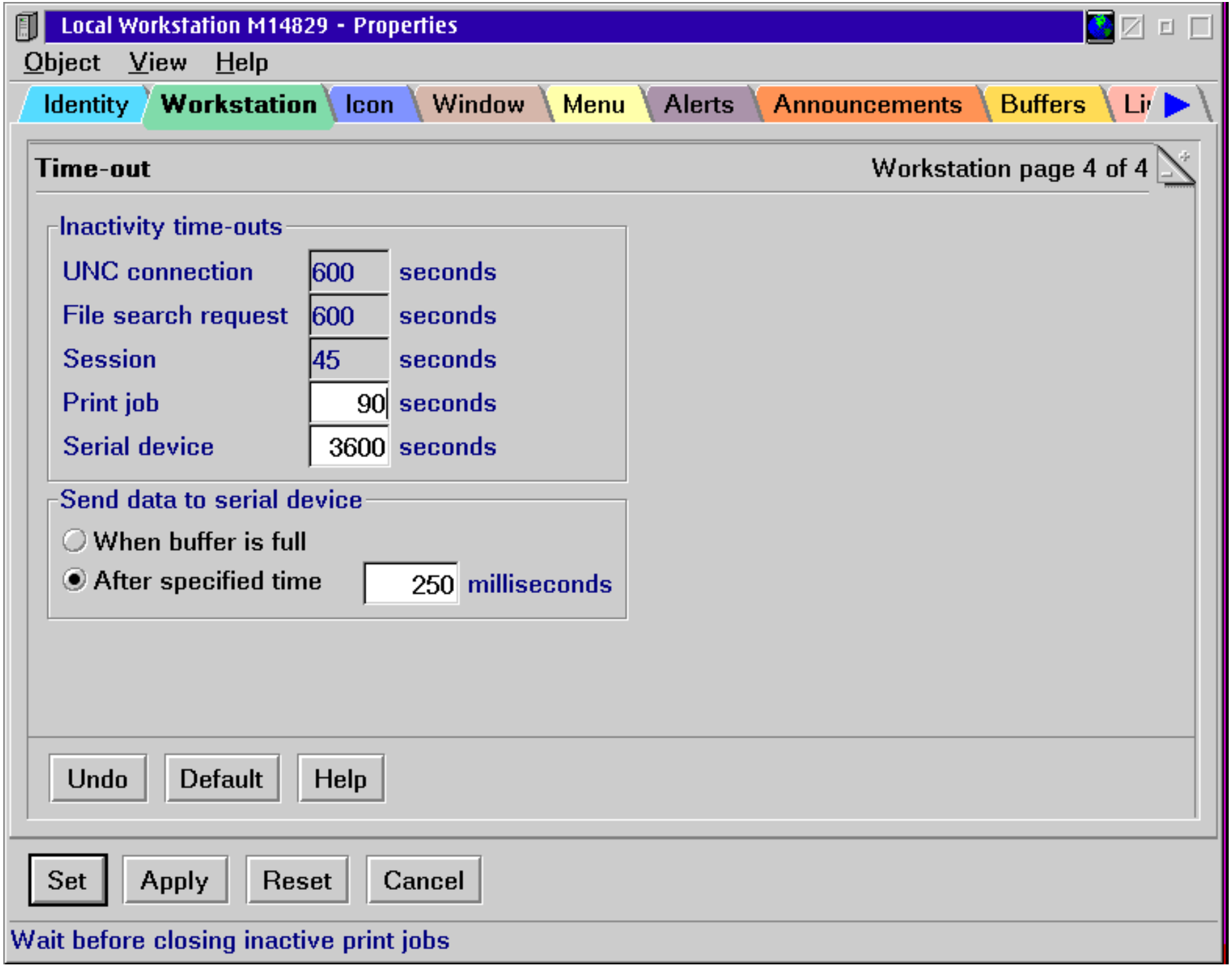
# Parameters (1 of 12)



# Parameters (2 of 12)



# Parameters (3 of 12)



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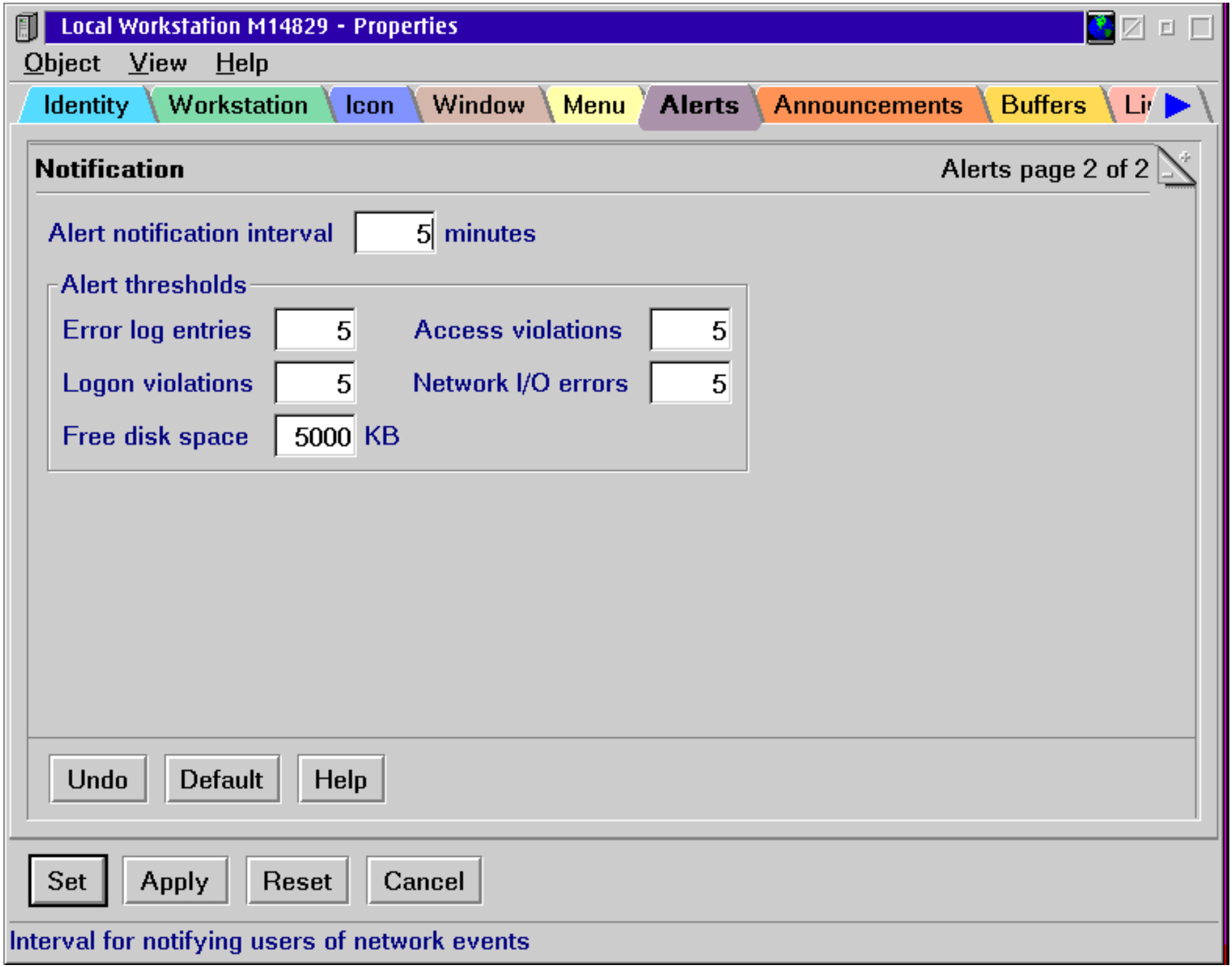

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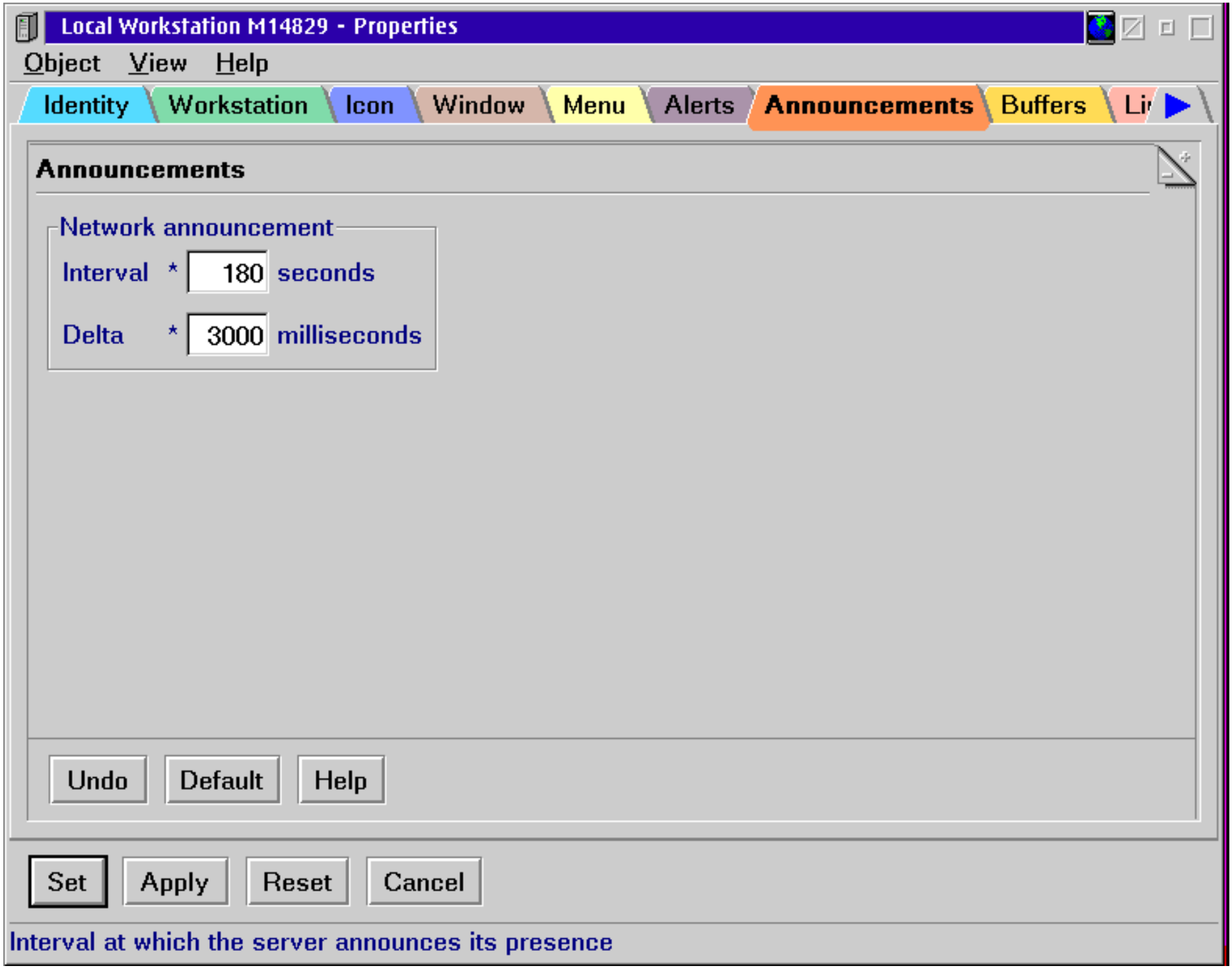

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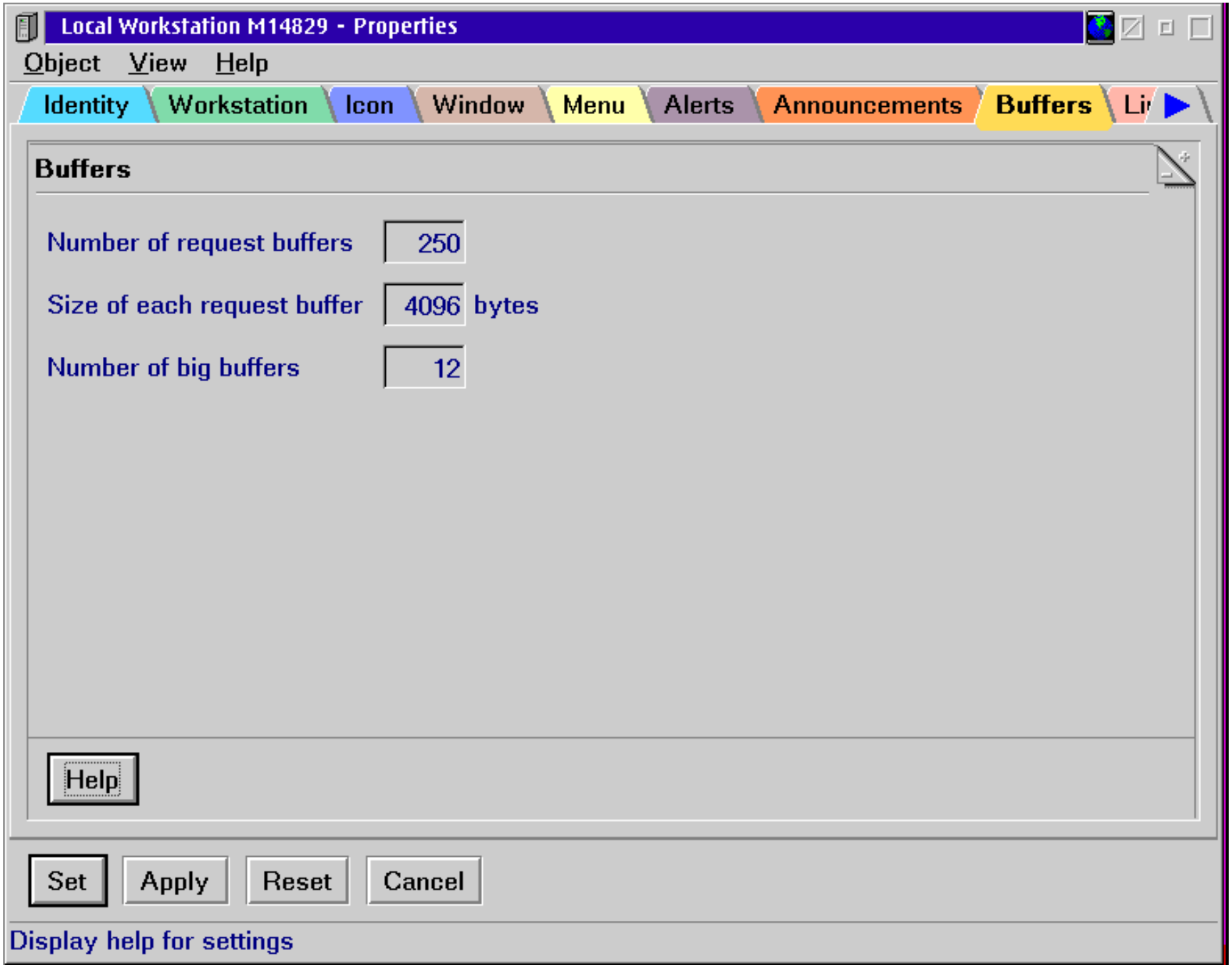

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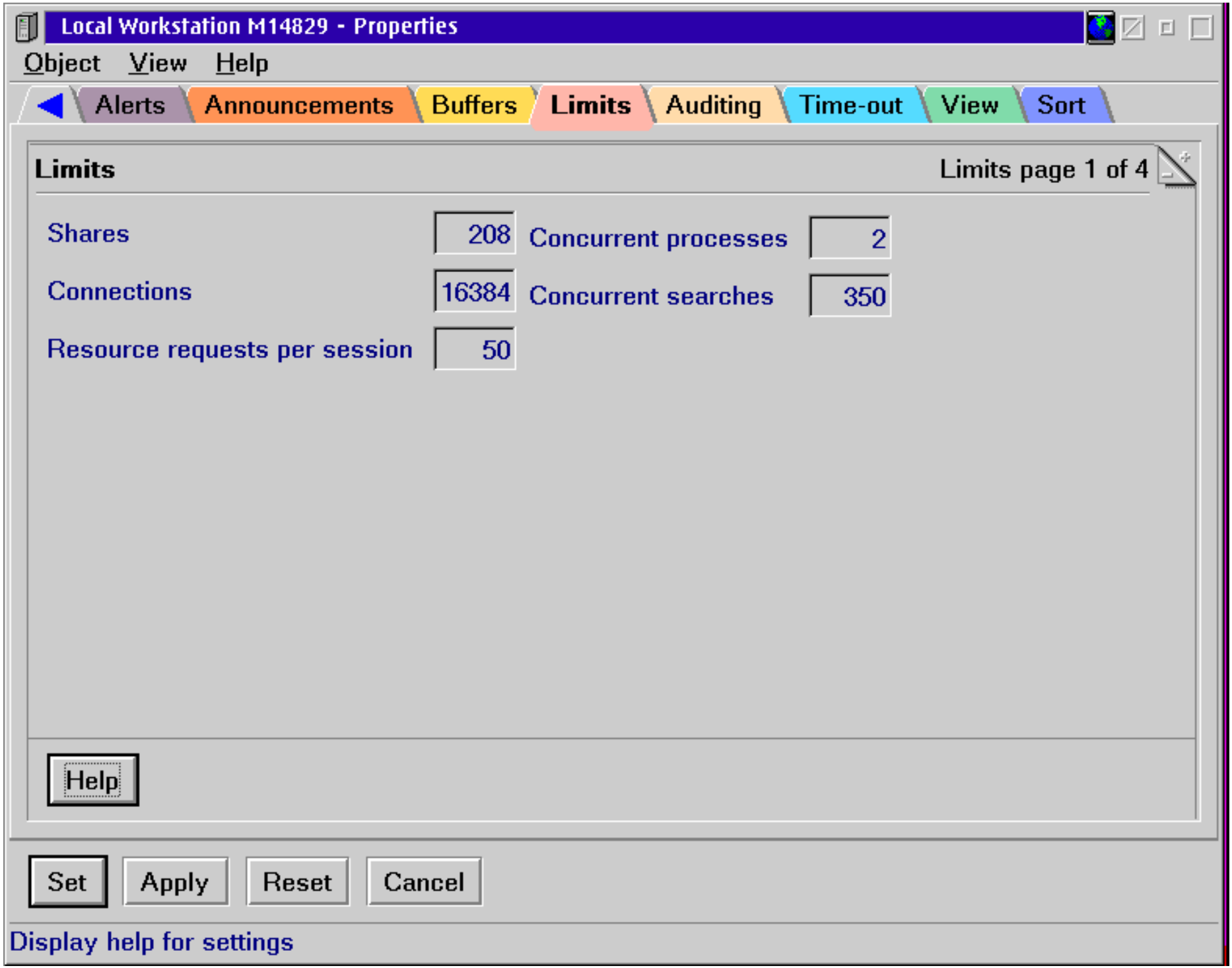

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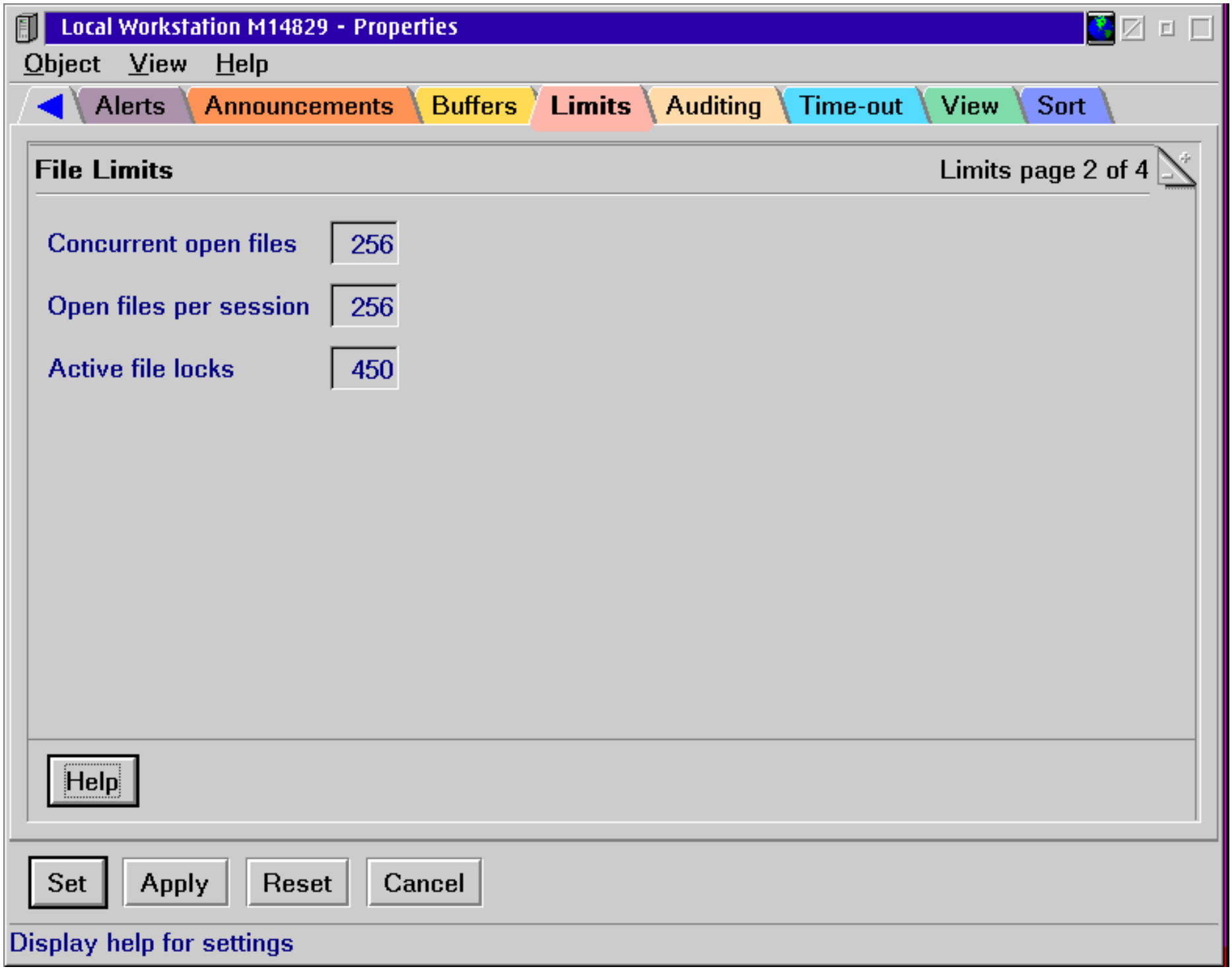

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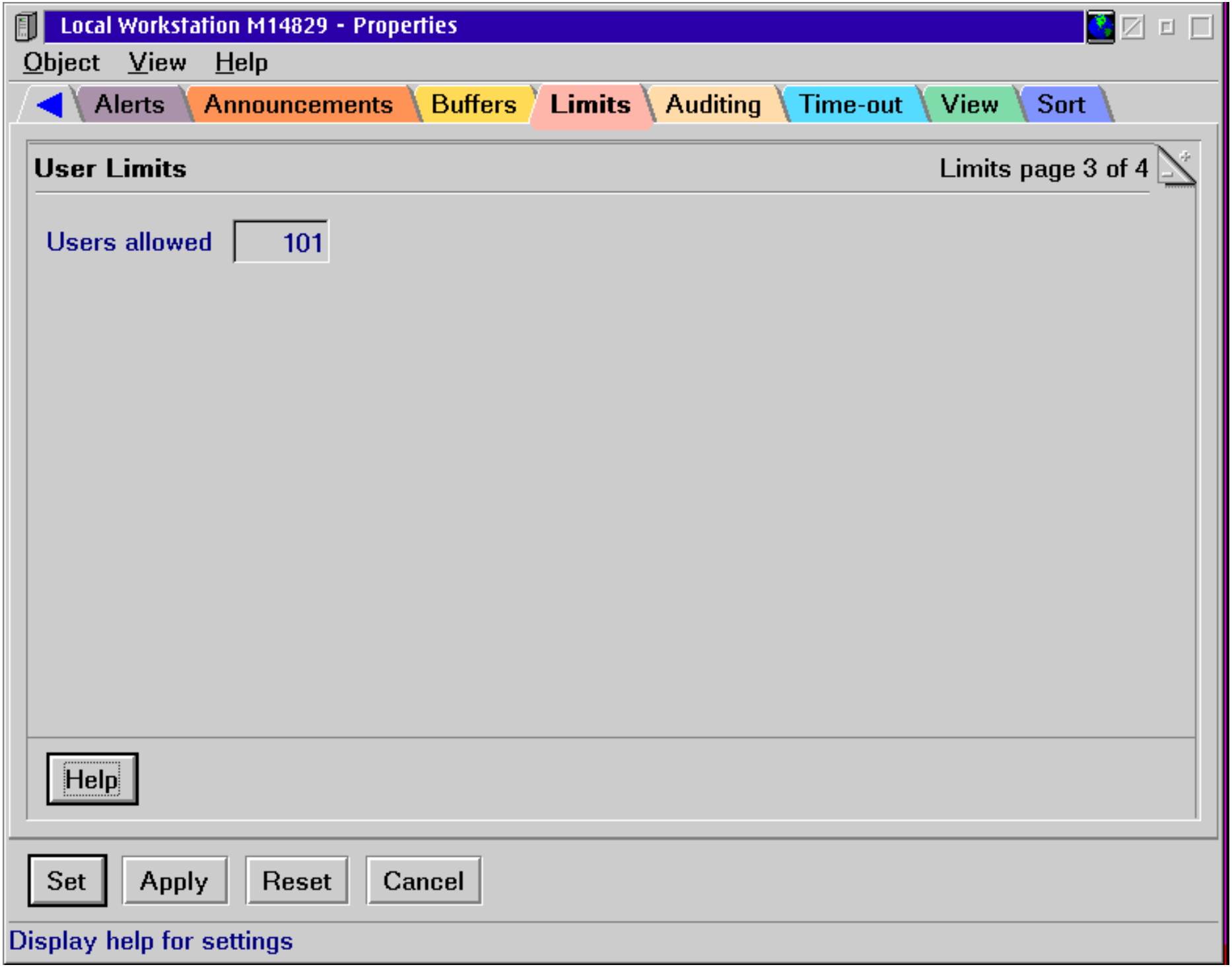

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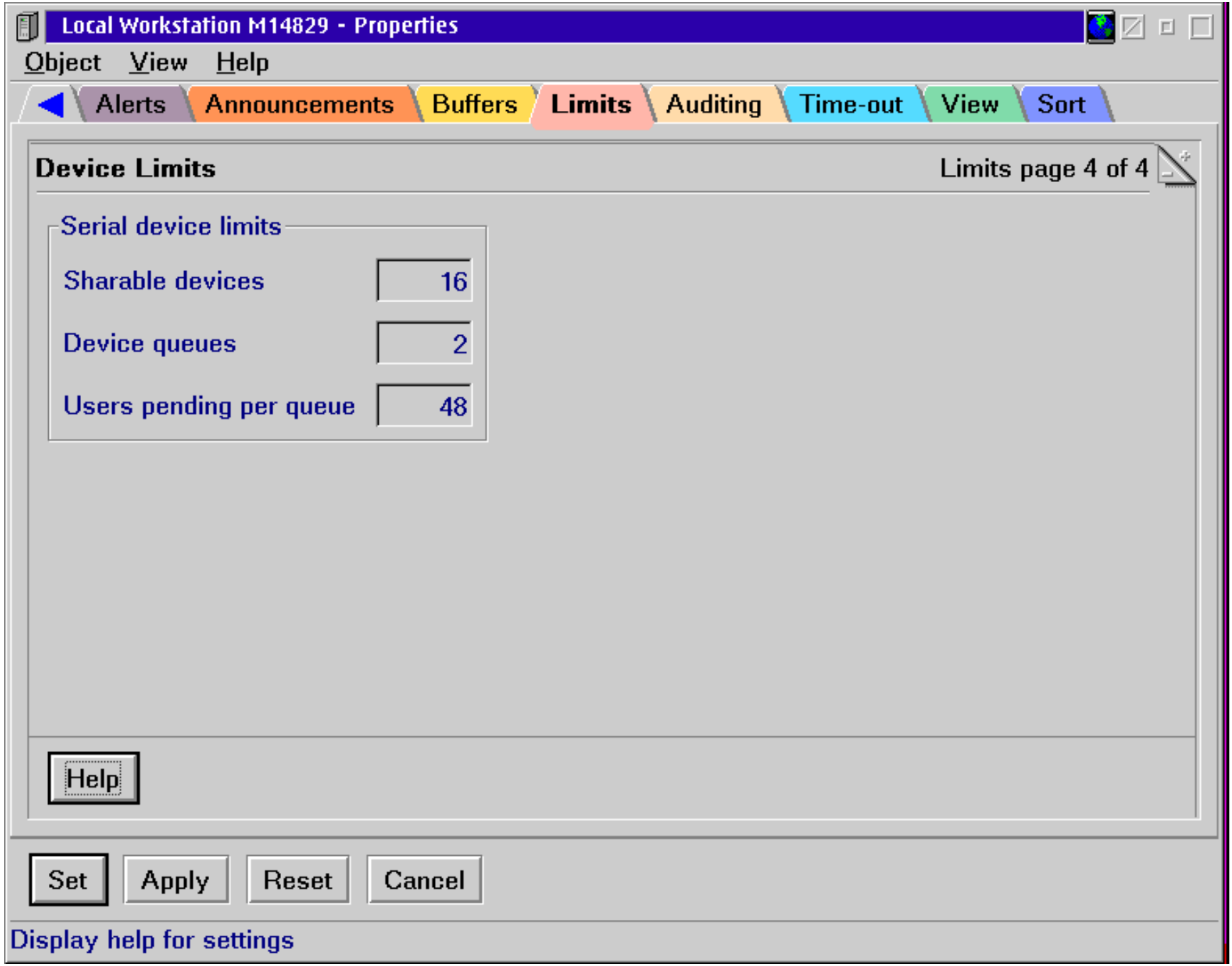

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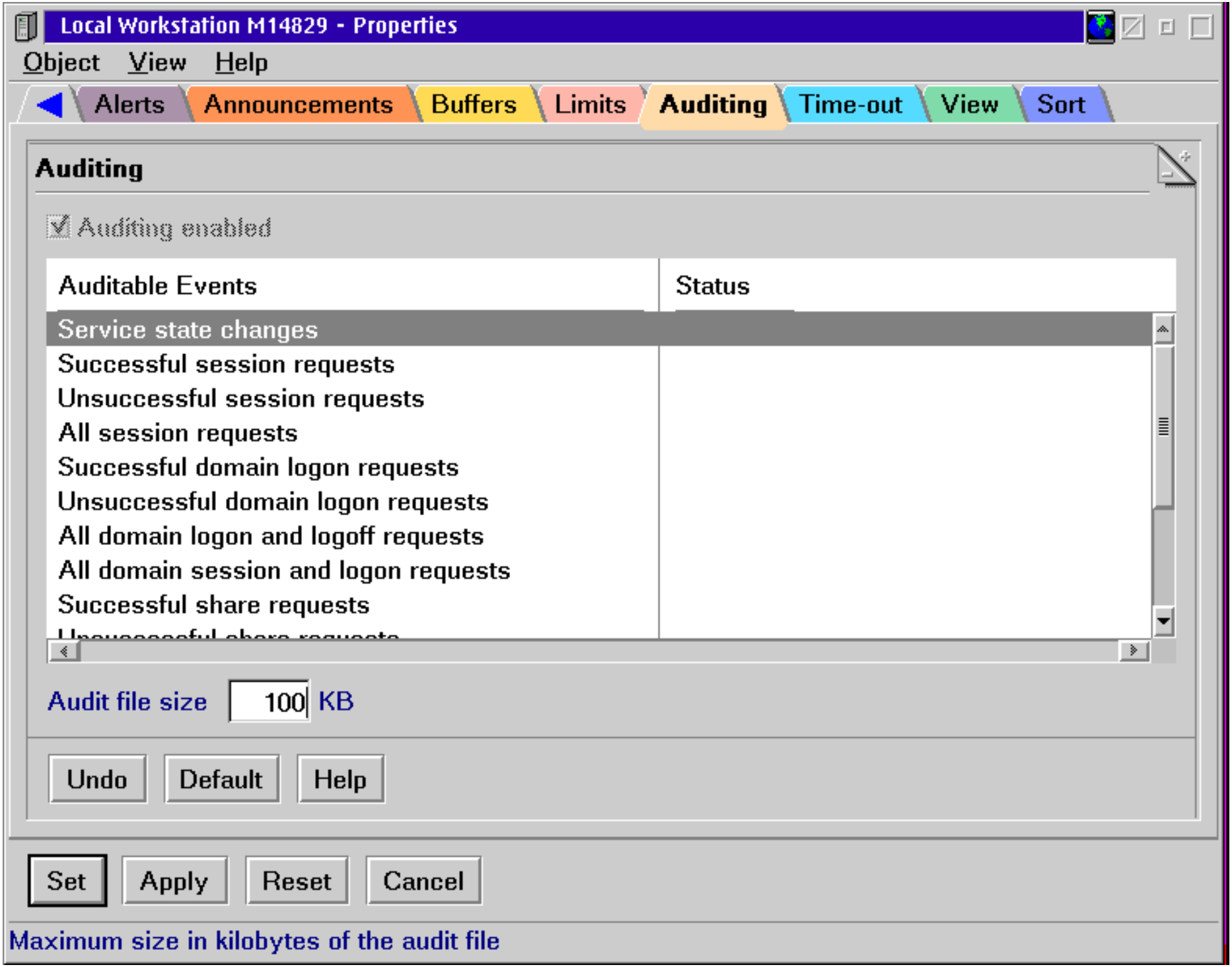

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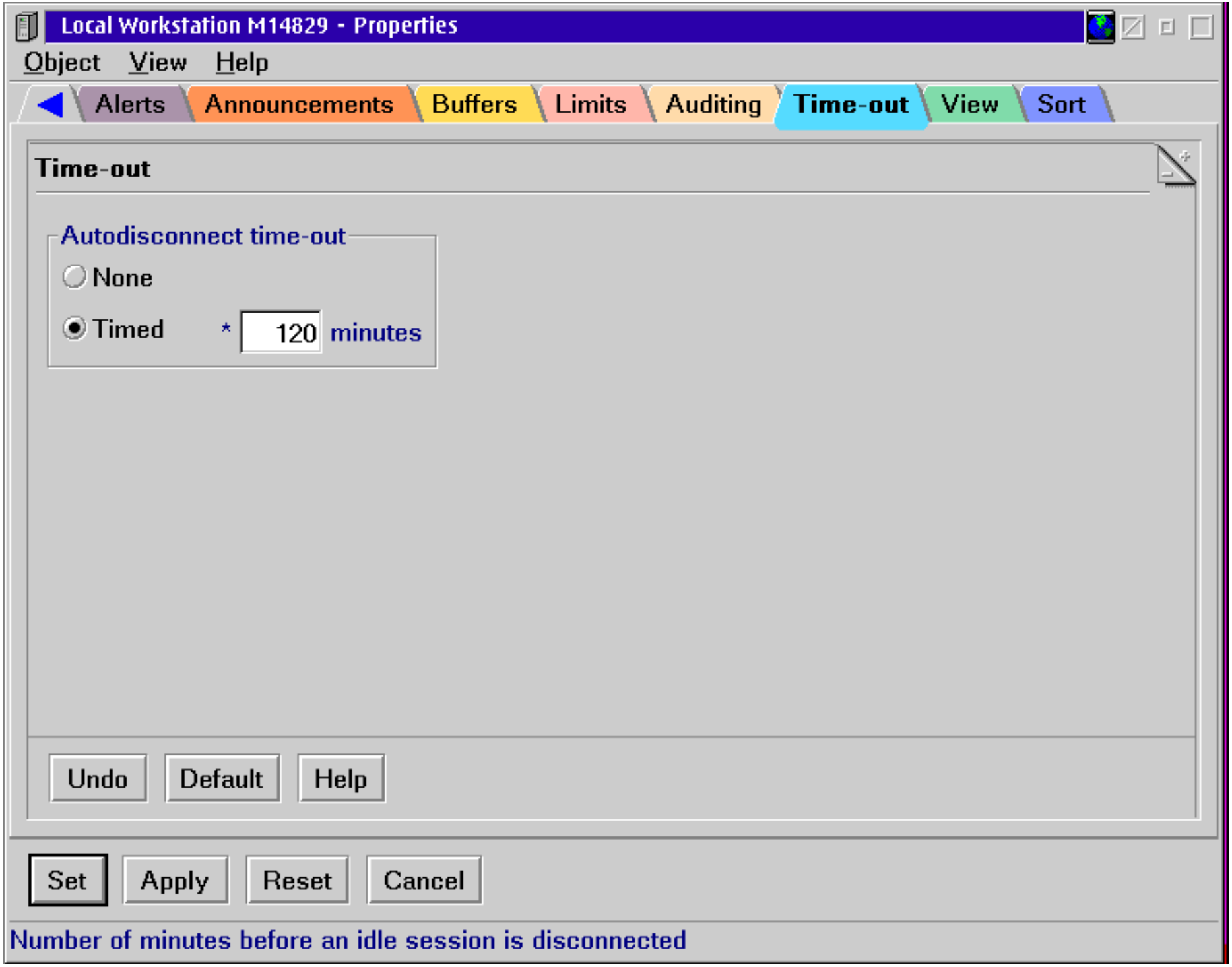


# View and Close Open Files

- LAN Admin GUI
- Net File <id /C>

# View and Delete Active Sessions

- LAN Admin GUI
- NET SESSION <\\machineid /delete>

# Performance Statistics

- LAN Admin GUI
- NET STATISTICS

# Perform Auditing Tasks

- LS Audit Log Utility
- NET AUDIT

# Manage Error Logs

- LS Error Log Utility
- NET ERROR

# Schedule Tasks

- Schedule tasks to run
- AT command

# Configure and Use an Uninterruptible Power Supply Service

- [UPS] section IBMLAN.INI

| | |
|---|---|
| batterymsg | Interval of time used to repeat alerts for low battery |
| batterytime | Number of seconds server can run on battery |
| cmdfile | CMD file to be run before the server shuts down |
| cmdtimer | Number of seconds the CMD file has to complete |
| devicename | UPS_DEV |
| lowbattery | WARNING/SHUTDOWN if battery power is low AC ok |
| messdelay | Delay between power failure and first message sent to users |
| messtime | Number of seconds between messages sent |
| recharge | Minutes of recharge time for each minute of battery run |
| signals | Signals available from the battery (3 digits) |
| voltlevels | Voltage levels for signals |

# Integrate DLS/Win3.1

- Client pack CD

# Integrate Win95/98 and NT Clients

- Network Neighborhood Browser service

# Add NT Servers to OS/2 Warp Server Domain

- Install IBM Network Users Account Manager service on NT
- Add NT server to OS/2 Warp Server domain

# Clients Supported

- OS/2 Warp 3.0
- OS/2 Warp 4.0
- DOS

# Protocols Supported

- 802.2 RIPL/NetBEUI
- 802.2 RIPL/TCPBEUI
- DHCP PXE RIPL/TCPBEUI
- DHCP PXE RIPL/NetBEUI

# RIPL Process

- RIPL process controlled by:
- DHCP boot files:
  - <client>.INF
  - bpcommon.ISA
    or
  - bpcommon.MCA
  - rfcnames.lst
  - rfcbcst.lst
- RPL.MAP
- NDISDD.PRO
- .CNF boot block definition file (only 802.2 RIPL) - multiple
- File Index Table (FIT) - multiple
- Defaults are created as part of the RIPL service install, but have to be updated before (or as part of) RIPL client definition.

# RPL.MAP

- Unique record for each requester
- Defines Server

# CNF Files

- Refered to by RPL.MAP entries
- Defines the OS to be booted and the sequence

# FIT Files

- Maps requester file names to server file names
- Wild cards and prototyping allowed
- Machine (IPL) and User files (logon)

# NDISDD.PRO

- NDIS Device Driver profile
- Maps RIPL supported Network card drivers

# RIPLINST

- Installs the common client OS on the server
- Different subdirectory per OS version
- OS/2 Warp Server for e-business not supported as RIPL client

- Unpack from diskette 7 (or CD disk7 dir)
- Target install directory always x:\IBMLAN\RPL
- Use RIPLINST from target client
- Run GETRPL immediately after each RIPLINST

# Creating or Changing a Remote IPL Client

- Lan Admin GUI interface
- Drag Requester template
- Set properties

# Deleting a Remote IPL Client

- LAN Admin GUI interface
- Select requester and delete

# Customizing Clients

- Modify "default" files before creating clients
- Special procedures for SVGA video install
- Refer to Chapter 17 of the *Network Administrator's Guide*

# REXX Support

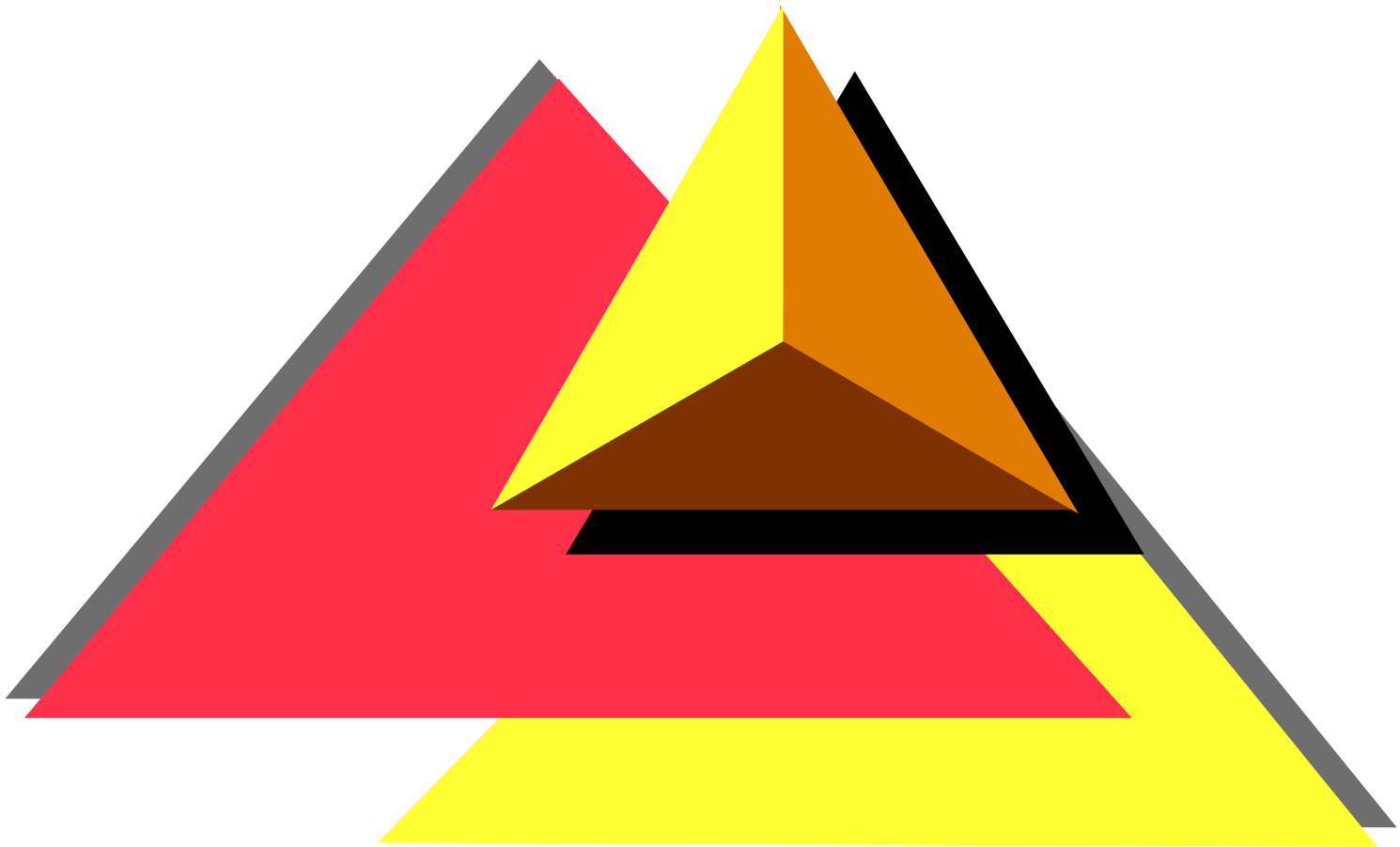
- RPLSETD.CMD
  - Upgrades RIPL clients to use appropriate video driver
  - Updates RIPL client to IPL a different version of OS/2
  - Updates RIPL client to change the bus type
  - Updates RIPL client for local or remote swappath and page file
  - Updates OS/2 Warp 4 RIPL client to support TCP/IP
- RPLSVGAI.CMD
  - Updates server with SVGA support files

Refer to Chapter 17 of the *Network Administrator's Guide*

# Unit Summary

You should now be able to:

- Manage File and DCDB Replication
- Tune a OS/2 Warp Server for e-business network
- Perform Additional Network Task
- Perform Multiple Client/Server Integration
- Understand how to install, configure, and manage Remote IPL services



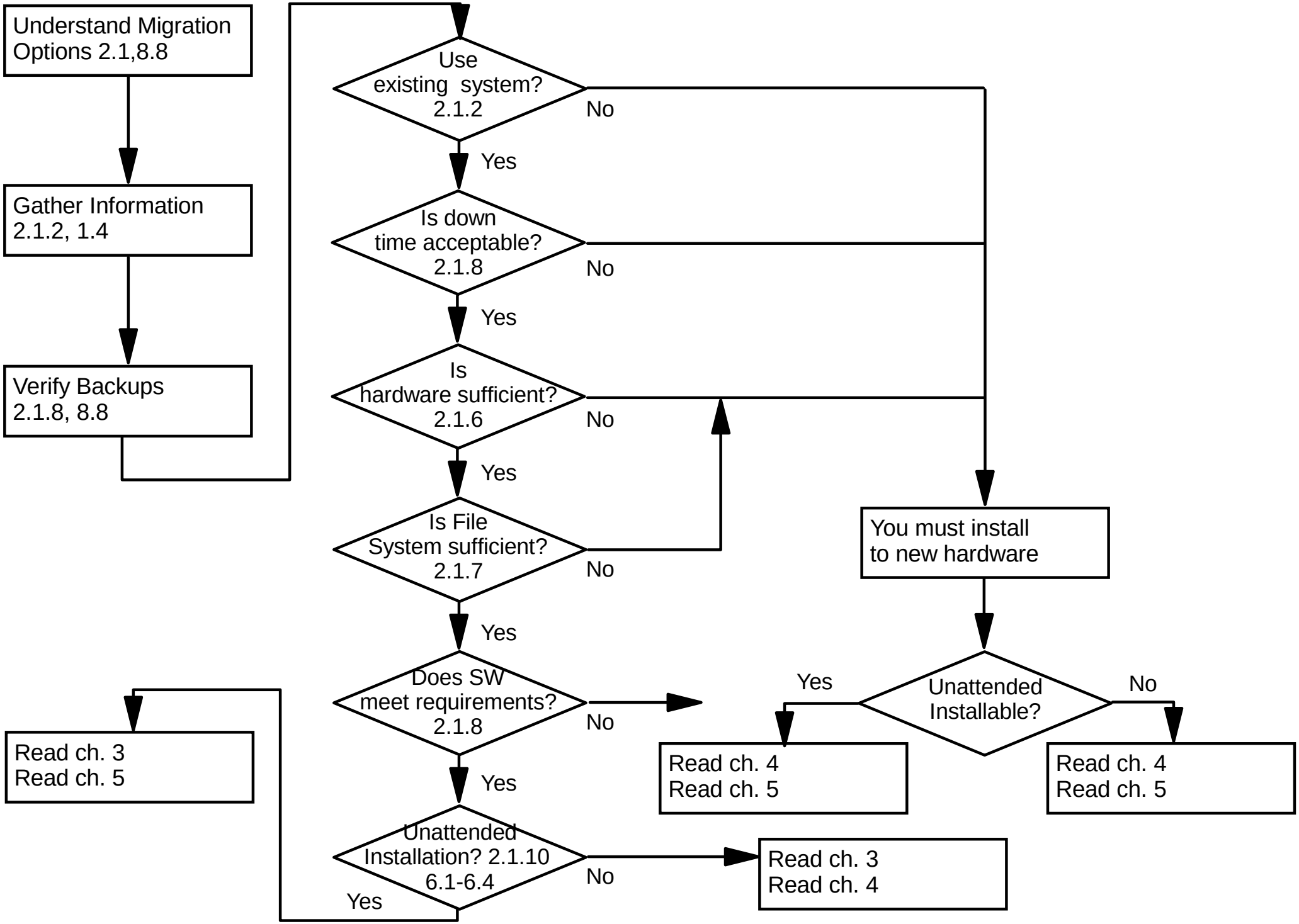
# Migrating an Existing System to OS/2 Warp Server for e-business

# Objectives

After completing this unit, you should be able to:

- Plan for migrating an existing system to OS/2 Warp Server for e-business
- Prepare a system for migration
- Understand the issues of CID migration techniques
- Understand the steps needed for simultaneously migrating to a new hardware platform and OS/2 Warp Server for e-business
- Migrate a system using panel installation

# Migration Roadmap



# Understanding Different Options for Migration

- Migrate 'on top' of an Existing Configuration
- Migrate Configuration to a New Machine
- Migrate to a New Machine with New Configuration

# Data Gathering (1 of 4)

| Information needed | Your decision |
|---|---|
| What is the CPU speed and type? | |
| What amount of RAM is installed in your systems? | |
| How large are the handdisks in your servers? | |
| What are the partition size? | |
| How much harddisk freespace is available? | |
| What products and services are currently installed on each of your servers? | |
| Can the server be taken down for migration? How long may that period last? | |
| Will software distribution be used to install/migrate the servers? | |

# Data Gathering (2 of 4)

- Do you have a proven backup?
- Do you want to install on different hardware?
  - SMP versus UNI considerations
  - I2O support

# Data Gathering (3 of 4)

## Does the hardware meet the prerequisites/recommendations?

| Component | Hard Disk Space Requirement (MB) |
|---|---|
| OS/2 Warp Based Operating System (default installation) | 96.7 |
| Optional OS/2 Warp Components | 150 |
| File and Print Sharing Services | 15.0 |
| TCP/IP Services | 30.0 |
| Remote Access Services | 5.9 |
| Netscape Communicator | 11.0 |
| Tivoli Management Agent | 1.5 |
| Personally Safe 'n' Sound | 7.2 |
| LDAP Services Tookit | 4.2 |
| Advanced Print Services | 54.0 |
| MPTS | 16.0 |
| First Failure Support Technology (FFST) | 0.1 |
| Online Books | 10.0 |

# Data Gathering (4 of 4)

- Is repartitioning necessary?
- Do you want or need to change the existing file system?
  - File system and hard disk management changes
  - Drive letter sequence
- OS/2 now supports four hard disk file systems:
  - FAT
  - HPFS
  - HPFS386 (with license)
  - New JFS

# File Systems

| | FAT | HPFS | HPFS386 | JFS |
|---|---|---|---|---|
| Bootable | Yes | Yes | Yes | No |
| Maximum Filesize | 2 GB | 64 GB | 64 GB | 2 TB |
| Maximum Volumesize | 2 GB | 2 GB | 2 GB | 2 TB |
| Disk spanning | Yes | Yes | Yes | Yes |
| Expand on line | No | No | No | Yes |
| Sparse Files | No | No | No | Yes |
| Unicode Filename | No | No | No | Yes |
| Maximum Cache size | 14 MB | 2 MB | ca 200 MB (320 MB-HEAP) | cs 200 MB |
| Max. no of file opens | 65536 | 65536 | 65536 | 65536 |
| Max no of file finds | 3072 | 3072 | 8192 | 32768 |
| ACL stored | in NET.ACC | in NET.ACC | in Filesystem (Fnode) | in Filesystem (Inode) |
| Number of ACLs | 8192 | 8192 | unlimited | unlimited |
| Max. no of file per directory | 512 on the root directory | limited by DASD space | limited by DASD space | 4,000,000,000 |
| Bad block relocation | No | Yes | Yes | Yes via LVM |
| DASD Limits | No | No | Yes | No |
| Software Fault Tolerance | No | No | Yes | No |

# Does Your Software Meet the Requirements for Migration?

| Component | CSD Level |
|---|---|
| OS/2 2.11 | XR_6200 |
| LAPS 2.20.2 | WR_7045 |
| OS/2 LAN Server 3 | IP_7045 |
| TCP/IP 2.0 | UN_0000 |

* This is needed for compatibility with the REXX procedures in this book.

**OS/2 LAN Server 3 Fixlevel prior to the Migration**

| Component | CSD Level |
|---|---|
| OS/2 Warp 3 | XR0W038 |
| IBM OS/2 LAN Adapter and Protocol Support | WR08415 |
| IBM OS/2 LAN Server | IP08260 |
| IBM TCP/IP Version 2.0 | ? |

**OS/2 LAN Server 4 Fixlevel prior to the Migration**

| Component | CSD Level |
|---|---|
| OS/2 Warp 3 | XR0W038 |
| IBM OS/2 LAN Adapter and Protocol Support | WRK08610 |
| IBM OS/2 LAN Server | IP08528 |
| IBM TCP/IP Version 3.1 | UN00002 |

**OS/2 LAN Server Fixlevel prior to the Migration**

# Data Gathering

- Is server downtime acceptable?
- Panel Driven Installation or CID-based?

# Special Considerations/Caveats (1 of 9)

- FDISK command not available
- NT coexistence on same machine
- Installation of OS/2 Warp Server for e-business on a machine that already has Windows NT installed will keep the data on the NT partiton intact. In some configurations the pre-existing NT system might not be bootable after OS/2 Warp Server for e-business Installation.

# Special Considerations/Caveats (2 of 9)

- Some HPFS386 features not available on JFS
- DASD limits
  - The current version of JFS shipped with OS/2 Warp Server for e-business does not support DASD limits.
  - Depending on your requirements there are several possible workarounds:
    - Keep the resources that need directory limits on a HPFS386 formatted  Volume
    - Use CHKSTOR as a replacement if it is sufficient to send an alert to the administrator when the limit is exceeded.
- Fault Tolerance
  - There is no replacement for the HPFS386 fault tolerance feature on JFS. Current server usually has a RAID adapter that can be used to perform this function in hardware.

# Special Considerations/Caveats (3 of 9)

- Drive letters referenced in Config.SYS
- Although LVM usually can change a drive letter 'on the fly', without rebooting, your applications still might rely on the letter that was previously assigned.
  - Change all the occurrences in config.sys to the new drive and reboot.
  - Create a Script that updates the variables before starting the application.
  - If there are references in LIBPATH, use BEGINLIBPATH or ENDLIBPATH instead.
  - Move the driver to your boot drive and change the invocation in CONFIG.SYS
  - Or change only the CONFIG.SYS

# Special Considerations/Caveats (4 of 9)

**CD-Rom Drive letter changes requiring reboot**

**The RESERVEDRIVELETTER statement in config.sys can help to avoid unneccessary reboots when 'juggling' the drive letters. It can be used to force the CD-ROM to a convenient letter.**

RESERVEDRIVELETTER Syntax

Add a line with

RESERVEDRIVELETTER=<letter>

anywhere in config.sys

**The CD-Rom will get the next drive letter after <letter> upon the next reboot.**

# Special Considerations/Caveats (5 of 9)

- Naming and LVM
- LVM introduces a new level of abstraction from the underlying disk structures and allows you to name each of the elements.
  - Harddisk
  - Compability Volumes, which when bootable, should keep the same letter
  - LVM Volumes, which are not bootable and might contain multiple partitions on several physical drives
  - Partition

| Element | Proposed Name |
|---|---|
| Physical Disk | IDE_0, IDE_1 or RAID_1, RAID_2 ... |
| Bootable Compability Volumes | WarpServer_C, SOS_D, etc. |
| Nonbootable Compability Volumes | Arbitrary name denoting the content |
| LVM Volumes | |
| Partition | D0P0 for Disk0 Primary0, D-P1 for disk 0 primary 1, etc, D0L0, D1L0 |

# Special Considerations/Caveats (6 of 9)

- NT Server integration
  - The IBM Network Account Manager for managing WIN NT additional servers only works with WIN NT V4.0, not with WIN NT 3.51.
  - The Network Account Manager relies on a Primary Domain controller with OS/2 Warp Server for e-business installed on it. This might impact the order in which you migrate your servers.

# Special Considerations/Caveats (7 of 9)

**Workspace On-Demand 1.0**

**It is *not* recommended to install OS/2 Warp Server for e-business on a server that has Workspace On-Demand Release 1.0 installed. OS/2 WarpServer for e-business is intended to support Release 2 of Workspace On-Demand.**

# Special Considerations/Caveats (8 of 9)

- Backup Software and JFS
  - JFS supports now larger files under OS/2 than any previous OS/2 version and also has the feature to support sparse files. Make sure that your backup software can handle these features before you start to exploit them.
  - Sparse files that are backed up with software that does not support them will become 'dense' files upon restore.

# Special Considerations/Caveats (9 of 9)

- Components not in the OS/2 WarpServer for e-business package

| Components and Products removed by OS/2 Warp Server for e-business installation |
|---|
| Ultimedia Video In |
| OpenDoc |
| VoiceType |
| Coaches installation support |
| MobileFileSync |
| Password Coordinator |
| Ultimedia Mail |
| System View Agent |
| Warp 4 Tutorial |
| Warp 4 Hibernate and Trap Door Support (aka True Dos) support |
| The following Bonus Pack Utilities |
| Ask PSP |
| Hyper Access Terminal |
| CompuServe Info Manager |
| IBM Works |
| VideoIN for OS/2 |
| RSJ Remote Support for OS/2 |

# Preparation Setup

| Preparation Step | refer to Chapter | Check when done |
|---|---|---|
| Verify Fixpack Prerequisites | Chapter 4.2 | |
| Coexistence with Windows NT | Chapter 4.3 | |
| Perform a Test Installation | Chapter 4.4 | |
| Evaluate Disk Utilities and Customer Written Tools | Chapter 4.5 | |
| Have Access to Hardware Configuration Disks | Chapter 4.6 | |
| Have Copies of Important Configuration Files Available | Chapter 4.7 | |
| Backup your System | Chapter 4.8 | |
| Prepare for Disaster Recovery | Chapter 4.9 | |
| Remove LAN Distance | Chapter 4.10 | |
| Remove Local Security | Chapter 4.11 | |
| Back Up Directory Limits | Chapter 4.12 | |
| Back Up Access Control Information | Chapter 4.13 | |
| Save the DCDB | Chapter 4.14 | |
| Remove HPFS386 Access Controls | Chapter 4.15 | |
| Boot-Time Considerations | Chapter 4.16 | |
| Remove IBM Peer | Chapter 4.17 | |
| Document Printer and Queue Definitions | Chapter 4.18 | |
| Document Multimedia Device Configuration | Chapter 4.19 | |
| Deactivate Fault Tolerance | Chapter 4.20 | |

# Tools for the Preparation

| Preparation Step | Tools | provided by |
|---|---|---|
| Backup your System | SRVBU | CD |
| Prepare for Disaster Recovery | MAKEDISK | LAN Server |
| Remove Local Security | PREPACL | LAN Server |
| Back Up Directory Limits | BACKDASD, SRVBU | CD, CD |
| Back Up Access Control Information | BACKACC, LSMT, SRVBU | LAN Server, CD, CD |
| Save the DCDB | SRVBU | CD |
| Remove HPFS386 Access Controls | PREPACL | LAN Server |
| Document Printer and Queue Definitions | BACKPRN | CD |

# Perform a Test Installation

- We strongly recommend the installation of OS/2 Warp Server for e-business on a test machine prior to migrating a productive system. Try both, a prestine installation and a migration of a cloned machine for the following purposes:
  - To become familiar with the installation process
  - To discover hardware-related problems
  - To discover software related-problems concerning the migration of the operating system, OS/2 LAN Server, MPTS and TCP/IP.
  - To find out if additional programs are migrated in an acceptable manner for example, HP JetAdmin Port Driver, Lexmark Markvision Marknet Port Driver, Bonus Pack Utilities, TME 10
  - Netfinity Server 4.0 or SystemView 1.0.1
  - To discover software related problems with the JFS file system for example does your backup software handle JFS formatted drives properly?
  - To discover problems of the kind mentioned in the previous chapter "Coexistence with Windows NT"
  - To get the response files which will be created automatically by the panel-driven OS/2 installation program.

# Evaluate Disk Utilities and Customer Written Tools

- WPS Issues
- File System Issues
  - As mentioned in the previous chapters OS/2 Warp Server for e-business introduces two new file system features:
    - Journaled File System (JFS)
    - Logical Volume Manager (LVM.EXE).

# Configuration

- Have access to hardware configuration disks
- Have copies of important configuration files available
  - If you plan to migrate an existing machine, it may prove to be useful to have copies of the important configuration files on a diskette, because you will have to lookup some machine or user-specific data for example, MAC address, TCP/IP address and hostname, but you wouldn't be able to check it without interrupting the migration process
  - You will have to reset configuration data to its prior value, since it was modified by the installation program during the migration process . We found out that the CACHESIZE= in the HPFS386.INI file was reset to a standard value, if not configured manually. This prevented the server service from starting after the migration.

# Configuration Files

| File | In Directory |
|---|---|
| CONFIG.SYS | Root of Bootdrive |
| STARTUP.CMD | Root of Bootdrive |
| HPFS386.INI | \IBM386FS |
| PROTOCOL.INI | \IBMCOM |
| RFCNAMES.LST | \IBMCOM |
| RFCBCST.LST | \IBMCOM |
| IBMLAN.INI | \IBMLAN |
| RPL\RPL.MAP | \IBMLAN |
| MPTSTART.CMD | \MPTN\BIN |
| SETUP.CMD | \MPTN\BIN |
| RESOLV2 | \MPTN\ETC |
| HOSTS | \MPTN\ETC |
| NAMED.BT | \MPTN\ETC\NAMEDB |
| NAMED.CA | \MPTN\ETC\NAMEDB |
| NAMED.REV | \MPTN\ETC\NAMEDB |
| SYSLOG.CNF | \MPTN\ETC\NAMEDB |
| TCPSTART.CMD | \TCPIP\BIN |

# Back up Your System

**If for any reason you are unable to do so, you should at least have a backup of the following components (if they apply to your system):**

1. **Company's Data**
2. **User Home Directories**
3. **Applications**
4. **Operating System**
5. **User Logon Profiles**
6. **Server Configuration Data**

# The SRVBU Utility

- SRVBU is a procedure written in REXX. Running on your server, SRVBU scans a predefined set of logical drives and performs the following actions on each of the scanned drives:
  - Back up HPFS386 Access Control Information to a file DISKX.ACL, if X is the drive letter of a HPFS386 formatted partition
    1. Back up the NET.ACC to the file NETACC.BKP
    2. Back up DASD limits to a file named DISKX.DLM, if X is the drive letter of a DASD limit enabled partition
    3. Copy crucial server configuration files as specified in the SRVBU.INI file
    4. Write a disk statistics file as specified in the SRVBU.INI file
    5. Write a processing log as specified in the SRVBU.INI file
    6. Write an error log as specified in the SRVBU.INI file.

# LAN Server Management Tools (LSMT)

| Procedure | Purpose | output file |
|---|---|---|
| getusers /srv:<srvname> /m | extract user information | USERS.CSV |
| getgrps1 /srv:<srvname> /m | extract group names and comments | GROUPS1.CSV |
| getgrps2 /srv:<srvname> /m | extract groups and memberships | GROUPS2.CSV |
| getalias /srv:<srvname> /m | extract alias definitions | ALIAS.CSV |
| getacl /srv:<srvname> /m | get access profiles | ACL.CSV |
| getassgn /srv:<srvname> /m | get user logon assignments | ASSGN.CSV |
| getappl /srv:<srvname> /m | get defined public applications | APPL.CSV |
| getsel /srv:<srvname> /m | get application assignments | SELECTOR.CSV |
| getpwd /srv:<srvname> /m | get passwords (encrypted) | USERS.PWD |

# Prepare for Disaster Recovery

1. Make copies of the OS/2 installation diskettes and modify them manually
2. When using HPFS386, use the MAKEDISK Utility located in \IBMLAN\NETPROG
3. If your backup software offers functionality to create Disaster Recovery Diskettes, then do it this way.
   - Verify that the Disaster Recovery Diskettes at least contain the following additional drivers, and if not, add them manually:
     - HPFS386 driver, if your server has HPFS386 installed
     - SCSI driver, if your backup device is a SCSI device
     - RAID driver, if your server has a raid array
     - backup device dependent driver.

# Remove Remote Access Services

- The OS/2 Warp Server for e-business software cannot be installed over a previously installed Remote Access Connection Server or Remote Access Client. You must remove it before installing any OS/2 Warp Server for e-business software.
  - If not already part of your regular backup, save your \CONFIG.SYS and your \IBMCOM\PROTOCOL.INI to a save place.
  - Call LDREMOVE.EXE which is located in the Remote Access installation directory (\WAL by default).

# Remove Local Security

If you are using Local Security on at least one of the HPFS386 formatted partitions, you must deactivate it before migrating to OS/2 Warp Server for e-business by doing the following:

1. In the CONFIG.SYS file change the line

   PROTSHELL=C:\IBMLAN\NETPROG\SECURESH.EXE
   C:\OS2\PMSHELL.EXE

   to

   C:\IBMLAN\NETPROG\SECURESH.EXE

   to get rid of the local logon procedure
2. Run the PREPACL utility to remove the access control information supplied by Local Security. Chapter 4.15 Remove HPFS386 Access Controls decribes how to use PREPACL.

# Back Up Directory Limits

- Directory limits provide disk space management at the server's directory level. If you applied directory limits to your server's file system, save them and disable them afterwards. If it is not already a part of your regular backup (for example, with the SRVBU utility), keep the saved directory limit information in a safe place for restore purposes.
- BACKDASD Example:
  - BACKDASD /F:DISK_F.DLM /P:F:\HOMEDIR

# Back Up Access Control Information

- ACKACC performs the following tasks:
  1. Copies the NET.ACC file
  2. Copies the NET.AUD file
  3. Backs up Access Control Profiles for each drive to be converted to or from HPFS386
  4. Deletes access control profiles for nonexistent directories
- BACKACC Syntax
  - BACKACC d:pathname /F:target /S

# Save The DCDB

- The Domain Controller Database (DCDB) is located on the domain controller containing information about definitions of network resources that users might access. Included in theDCDB are user's automatic logon assignments, public applications definitions and the details of resources shared through aliases.
  - Manual Backup
  - Replication to a Backup Domain Controller (BDC)
  - Backup With LSMT

# Remove HPFS386 Access Controls

- The PREPACL utility backs up, removes, and, after the migration, restores all HPFS386 Access Control Profiles applied to any subdirectories or files specified as a parameter. Be careful, since PREPACL removes the ACLs and copies backup information to an ASCII file. Careless repetitive usage of this utility will overwrite previous file contents, and the ACLs will be completely lost.
- PREPACL Syntax
  - PREPACL /P /B:filename /D:dirname

# Boot-Time Considerations

- The following actions are not necessary, but can avoid problems and shorten installation time:
  - Remark all device drivers in the CONFIG.SYS which are not necessarily needed for the migration
  - Remark all programs in the STARTUP.CMD which are not necessarily needed for the migration
  - Remove the icons of all the programs from the startup folder which are not necessarily needed for the migration.
- Don't forget to undo these changes after the migration.

# Deactivate Fault Tolerance

**If you are running OS/2 LAN Server Fault Tolerance, unmirror and deactivate all those currently mirrored drives on which services will be installed.**

| Partition | Driveletter | Size | Partition Type | Filesystem |
|---|---|---|---|---|
| ( BOOT MANAGER) | N/A | (depends on HD) | primary | N/A |
| SoS | C: | 32 MB | primary | FAT |
| System | D: | 512 MB | logical | HPFS or HPFS386 |
| Dump | E: | RAM size + 1 MB | logical | FAT |
| Data | F: | (optional) | logical | JFS |
| CD-Rom | G: | N/A | N/A | CDFS |

# Preparation

- Document Multimedia Device Configuration
- Remove IBM Peer
- Document Printer and Queue Definitions
  - If you have defined printer queues on your server, manually recording all the printer and queue definitions is a tedious task. We used the tool BACKPRN, which backs up printer and job properties to a file. This file can be used later for restoration by RESTPRN or RINSTPRN (the remote printer installation program

# Preparing the Migration

- General Structure of the Server's Disks
- Backup Domain Controller
- Migrating the File and Print Servers
- Migrating the Primary Domain Controller

# Performing the Migration

- Preparing the system
  - Select the install volume
  - Format the volume (if necessary. In our case we will obviously not format the volume)
  - Copy the system files
  - Configuring hardware and software options
  - Installing and configuring the server components
- Copying the needed files
- Installing the LAN server components

# Under the Covers

- The installation process is a three phase one (each of these phases is separated from the other by a reboot).
- Phase 1
  - This phase uses the text-based interface and during it, the files needed to restart the operating system from the hard disk are copied. In details, the CDBOOT.EXE program is started and under its control CONINST.EXE (CD-ROM and Network adapter card detection) and SYSINST2.EXE (Installation type query, FDISK Call, Actual files copy) are run.
- Phase 2
  - During this phase, the rest of the operating system and the selected other components are installed including MPTS (Multi Protocol Transfer Services)
- Phase 3
  - The last phase is used to install TCP/IP and the LAN Server components. The last objects are created and placed in their respective folders. It is followed by the last reboot that will bring up the default desktop.

# Finishing the Migration

- When all the Base OS/2 system and LAN Server components have been installed, there is still some work to do:
  - If you migrated a Backup Domain Controller, verify that all its functions are correctly restored (Use for example here also the LSC.cmd and LSDCDB.Cmd programs). If you migrate a BDC, be sure you consider the need to (switch roles with the PDC).
  - If you migrated a File and Print Servers, check also that the aliases and the shares have effectively be restored.
  - If you migrated your Primary Domain Controller, then check that everything is now in place and that your general user can access the network and all the files he used.

# Migration Methodology

**The basic steps in this process are as follows:**

1. Prepare the new hardware
2. Test the new hardware to ensure that the system is functioning properly
3. Backup existing system configuration
4. Backup system data
5. Install OS/2 Warp Server for e-business on new hardware
6. Restore existing configuration to new hardware
7. Restore existing data to new hardware
8. Perform post-installation procedures
9. Perform integration procedures

# Preparing New Harware

**Depending on the model/type, size and complexity of the new hardware, the amount of effort required to prepare the hardware in advance will vary. The preparation may include locating the correct system support diskettes, adapter drivers, peripheral drivers and actually configuring the new hardware itself. Specific preparation details will not be discussed here.**

**Please verify that your hardware is supported before you proceed.**

# Supported Hardware

**You will be able to find most current information on supported hardware on the Internet. Please see the following address:**

**http://www.software.ibm.com/os/warp/support**

**Additional device support is available at the following address:**

**http://service.software.ibm.com/os2ddpak/index.htm**

# Testing

**Before any system is integrated into a business environment, it should be fully tested. As a minimum, we recommend the following test procedure:**

1. Install OS/2 Warp Server for e-business on new hardware
2. Perform system testing
3. Perform functional testing
4. Develop migration plan
5. Test migration plan
6. Test recovery procedures

When preparing new hardware, you have the existing system available until the new hardware is brought online. You will only need to do the recovery procedures if something goes wrong after the new system is online.

# Suggested Hardware

**Since some migration scenarios rely on moving to alternative hardware, part of the migration will involve deciding what hardware to implement. This is a decision which will be different depending on the environment for which the system is needed.**

**NOTE: We recommend that you undertake detailed performance and capacity planning when deciding what hardware to implement.**

# Backup and Contingency

**Do not place your business at risk, please make sure that you have a reliable backup and recovery strategy in place.**

**The recommended steps in this process are:**

1. System backup
2. Data backup
3. Configuration backup
4. Proven recovery procedures
5. Migration strategy

# Migration Strategy

**Items to consider:**

1. Install the new system in a test environment and then swap out the existing system ?
2. Are both machines (the existing and the new machine) both online during the migration?  Would you rename the new machine when migration is complete?
3. Any others?

# Installation

**Items to consider:**

1. The migration can be either "simple" or "complex". Please refer to Chapter 5 for "Simple Migration" and Chapter 6 for "Complex Migration".
2. Installation to a new machine...(may need to backup and restore data/configuration from an existing server).

# Preparing the CID Installation

- Establish a code server
  - LAN CID Utility (LCU) - Comes with OS/2 Warp Server
  - SRVIFS - Comes with MPTS
  - NetViewDM/2
- Copy images to the code server

```
xcopy d:\OS2IMAGE x:\CID\IMG\OS2\ /s /e
xcopy d:\CID\DLL x:\CID\DLL\ /s /e
xcopy d:\CID\EXE x:\CID\EXE\ /s /e
xcopy d:\CID\LOCINSTU x:\CID\LOCINSTU\ /s /e
xcopy d:\CID\NIFS x:\CID\NIFS\ /s /e
xcopy d:\CID\SERVER x:\CID\IMG\ /s /e
```

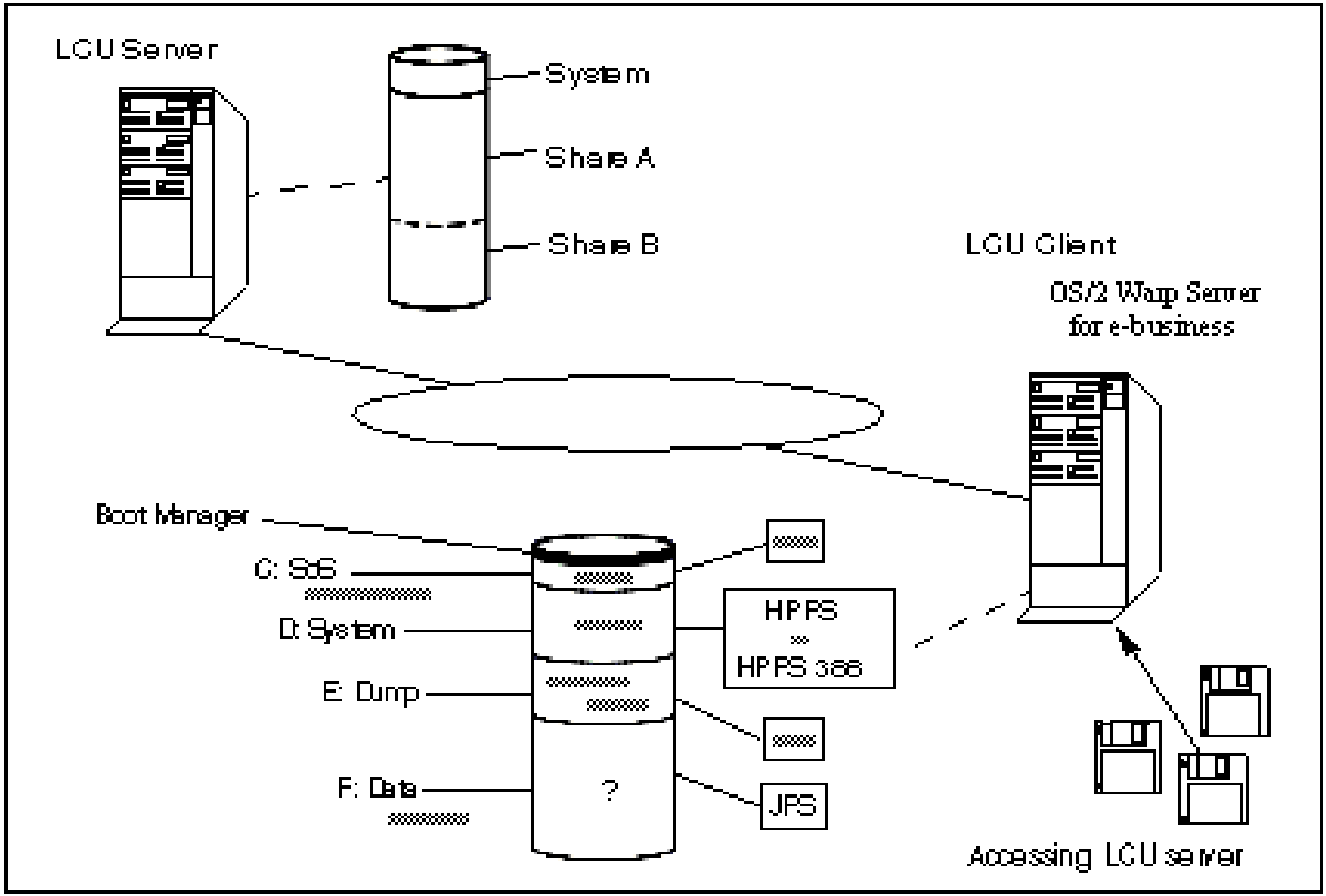
# The Installation Steps

- Preparation Steps
  - Do all the preparation steps to ensure a fail-safe migration process
  - Exception: don't remove the ACLs on HPFS386
- Create a maintenance system
  - Run SEMAINT
  - Run THIN386 - If you are using HPFS386
- Update the Base Operating System

# Principles of CID

- CID Enablement
- CID for Migration
- Response Files
- Redirected Drives
- Code Servers

# LCU Server


LCU Server
System
Share A
Share B
LCU Client
OS/2 Warp Server
for e-business
Boot Manager
C: SES
D: System
E: Dump
F: Data
?
HPFS
HPFS 386
JFS
Accessing LCU server

# Setting Up a LCU Code Server

- As already mentioned, you need an OS/2 server with a large amount of free disk space to hold the LCU directory structure (cfr. See LCU server : directory structure ).
  - Create all the subdirectories (\ShareA, \ShareB, \ShareA\IMG, ...)
  - Then you should copy the images of the products into \ShareA\IMG.
  - Afterwards, you should configure the LCU server, and start running it.
  - Copy the product images to the IMG directory
  - First of all, we have to copy the images of all products from the different CD-ROM's to the \ShareA\IMG directory of the code server.

# LAN CID Utility

- A simple and powerful tool called LAN CID Utility (LCU) ships as part of Multiple Protocol Transport Services (MPTS) - included in OS/2 Warp Server for e-business.
- As far as networking and software distribution is concerned, MPTS consists of three primary components:
  - Adapter and Protocol Services
  - LAN CID Utility (LCU) and Code Server SetupUtility(CASSETUP)
  - SrvIFS (Server Installable File System)

# Software Distribution Managers

**In this Unit, we consider the following types of code server:**

**LAN CID Utility (LCU)**

**NetView Distribution Manager/2 (NVDM/2)**

**Tivoli TME 10 SD 3.1.3 (SD4OS2)**

# Assumptions

- Pristine Installation
  - In spite of the fact that we are considering a migration scenario, the installation of new products which come with OS/2 Warp Server for e-business has been discussed here. However, we emphasize that it is not a specific part of this migration scenario.
  - New product installation scenarios are described fully in a forthcoming red book "Inside OS/2 Warp Server for e-business" (SG24-5136-00), due in the first half of 1999.
- CID Knowledge
  - Throughout this unit, we assume a basic knowledge of CID techniques. We believe that many of the existing enterprise customers already use either CID, NVDM/2 or SWD products.

# Preparing the Code Server

- Installing and Tailoring the Code Server
- The code server set up consists of the following broad steps:
  - Create the appropriate CID directory structure
  - Load OS/2 CID utilities to the code server
  - Load product images to server
  - Create response files for each installable product
  - Set up the software distribution manager, if applicable

# Preparing the Code Server

- Preparing the Code Server
- Creating Response Files
- Introducing Feature Installer
  - 386HPFS
  - Java Development Kit (including Java Runtime Environment - JRE)
  - OS/2 Printer Utilities (HP JetAdmin and Lexmark MarkNet)
  - Personally Safe N' Sound
  - Lightweight Directory Access Protocol (LDAP) Client Toolkit
  - TCP/IP Applications
- Introducing Software Installer
  - Some products are still installed by the Software Installer program.
    - Lotus Domino Go Webserver 4.6.2.5
    - Netscape Communicator 4.04
    - Tivoli Management Agent: TME Endpoint 4.0

# Overview of Installation Steps

**Note on Installation Order**

**We have tried to highlight inter-dependencies between individual product installation steps, but it is impossible to guarantee that in your environment you will not encounter additional issues. Therefore we repeat our advice that you fully test your CID environment prior to actually migrating a production system!**

# Preparation Phase

**Create Maintenance System (SEMAINT)**

**Logical Volume Manager (LVM) Issues**

**Seed LAN Transport (THINLAPS)**

**File System Redirection (THINIFS)**

**Access to 386 HPFS Volumes (THIN386)**

**LCU Installation (CASINSTL)**

# Base OS/2 Installation - Phase One

- Install Base OS/2 Operating System (SEINST)
- Multiprotocol Transport Services (MPTS)

# Installation - Phase Two

- Display Driver Install (DSPINSTL)
- OS/2 Feature Installer (CLIFI)

# Principle Applications

- File and Print Sharing Services (LANINSTR)
- 386 HPFS (CLIFI)
- First Failure Support Technology/2 (FFSTINST)
- TCP/IP Application Services (CLIFI)
- Netscape Communicator (INSTALL)

# Other OS/2 Warp Server Applications

- Personally Safe N' Sound (CLIFI)
- Remote Access Services (or PPP Server) (INSTALL)
- Print Services Facility/2 (PSF2)
- OS/2 Warp Server for e-business Books (INSTBOOK)

# New Applications

- Netfinity Services (NETFINST)
- Lightweight Directory Access Protocol (LDAP) (CLIFI)
- Tivoli Management Agent (INSTALL)
- Lotus Domino Go Webserver (INSTALL)
- Websphere Application Server (WEBSPHER)

# Final Phase - Clean Up

- Delete SrvIFS (IFSDEL)
- Delete LCU (CASDELET)

# CID Installation Parameters

- Create LCU Boot Diskettes
  - In a pristine installation, it is necessary to create LCU boot diskettes for the system which will be installed. This is not necessary in a migration scenario.
    1. Create Original Boot Diskettes from CD ROM images
    2. Add LAN Transport and Adapter Support to the diskettes
    3. Add LCU Client Support to the diskettes
    4. Create a Startup Script
    5. Clean up the CONFIG.SYS on DISK 1
    6. Make Disk 2 unbootable using DBOOT
- When you have prepared your code server you will be ready to boot with client diskettes and start your pristine installation.

# Create Maintenance System (SEMAINT)

- SEMAINT creates a maintenance system on your bootable partition, or on another partition which will be booted in order to install OS/2. It copies a minimal version of the operating system to a new directory on a designated drive. When booted from the maintenance system, only text-mode programs can run.
- SEMAINT Syntax
  - SEMAINT /S:<Source_Path> /S2:<Service_Pak> /T:<Target_Path> /B:<Boot_Drive> /L1:<Path><Log_File_Name>

# 386 HPFS File System Access (THIN386)

- In the past, if you were using 386 HPFS formatted drives, THIN386 had to be run. THIN386 installs the 386 HPFS file system drivers onto the maintenance system, which ensured that the installation process had unrestricted access to all server drives.
- This step is not needed with OS/2 Warp Server for e-business. We have found that this step is no longer required if access controls are removed from the file system prior to the migration using PREPACL.

# Logical Volume Manager (LVM) Issues

- OS/2's FDISK utility has been replaced by the Logical Volume Manager (LVM). During migration the existing partitions must be converted to LVM Compatibility Volumes.
- At the time of writing, we had to implement a workaround so that the installation completed unattended.
- In a pristine environment, the disk must be partitioned via command line procedures automatically. The old FDISK command line switches no longer apply and new methods must be used.

# Install Base OS/2 Operating System (SEINST)

- Once the machine has been booted from the maintenance system, SEINST can be called to start the first phase of installation of the base OS/2 operating system.
- SEINST Syntax\
  - SEINST /S:<Source_Path> /T:<Target_Path> /B:<Boot_Drive> /L1:<Log_File> /R:<Response_File>

# Multiprotocol Transport Services (MPTS)

- The easiest way to upgrade MPTS is to re-install it using the same values in the response file that were specified during the last installation. Installing - or rather updating - MPTS immediately following the migration of the base OS/2 operating system saves one reboot in the overall installation cycle.
- During our testing, we found no significant changes in the way MPTS is installed compared to previous versions.
- MPTS CID Installation Syntax
  - MPTS /E:<env> /S:<source_path> /T:<target_path> /TU:<config_path> /R:<response_file> /L1:<log_file>

# File System Redirection (THINIFS)

- The SrvIFS (Server Installable File System) provides an easy means of redirection. THINIFS installs the necessary SRVIFS redirection files on the hard disk.
- We execute THINIFS twice to obtain two redirected drives for the next part of the installation, having rebooted to Presentation Manager mode.
- THINIFS Syntax
  - THINIFS /S:<Source_Path> /T:<Target_Path> /SRV:<CodeServer_Name> /REQ:<Client_Name> /D:<Drive_Letter> /TU:<ConfigSys_Path> /L1:<LogFile_Name> /NS:<NB_Sessions> /A:<IFS_Option> /W

# LCU Installation (CASINSTL)

- CASINSTL installs the LAN CID utility client code, which is the actual software distribution manager that works with SRVIFS.
- CASINSTL Syntax
  - CASINSTL /TU:<Boot_Drive> /CMD:<LCU_Path> /D /D:<Default_CMDFile> /L1<LogFile> /L2<LogFile2> /PL:<Path_Values> /PA:<LCU_Path> /PD /REQ:<Client_Name> /0

# Installation - Phase One (1 of 6)

- Display Driver Install
  - If you need to have a better resolution and/or more colors than the default 640x480x16 setup, you should install the appropriate display driver. For example Netscape Communicator  at the time of writing - needs at least 256 colors to run.
- Feature Installer
  - As previously mentioned, some components that belong to the base OS/2 operating system are installed by Feature Installer. After the initial installation using SEINST and following a reboot, Presentation Manager is working. With this pre-requisite fulfilled, CLIFI.EXE can be used to complete the update.

# Installation - Phase One (2 of 6)

- File and Print Sharing Services
  - The most important difference between this and the previous versions of LAN or Warp Server is that LANINSTR (the File and Print Sharing Services installation program) no longer installs 386 HPFS. However, the parameters of LANINSTR remain unchanged.
- 386HPFS
  - Because 386HPFS is now shipped as a separate product, it is no longer installed by LANINSTR. Moreover, LANINSTR will remove any 386 HPFS drivers from the disk drive. If you are installing 386HPFS for the first time, make sure that you install it after File and Print Sharing Services, but before rebooting the machine the next time it is needed.
- First Failure Support Technology (FFST/2)
  - In a CID environment, FFST/2 has to be installed in a separate step. The installation program is called FFSTINST.EXE.

# Installation - Phase One (3 of 6)

- TCP/IP Application Services
  - Previous versions of TCP/IP used INSTALL.EXE for installation. From version 4 onwards, there was a switch to Feature Installer. The procedures and response file we haveprovided represents a working version and uses Feature Installer.
- Netscape Communicator
  - Netscape Communicator is installed using Software Installer. The basic product is installed by the installation program INSTALL.EXE in the \CID\SERVER\NETSCAPE directory on the OS/2 Warp Server for e-business CD ROM).
- Personally Safe N' Sound (PSNS)
  - Like many other products, Personally Safe N' Sound is installed by the Feature Installer.

# Installation - Phase One (4 of 6)

- Remote Access Services (RAS) or PPP Server
  - Remote Access Services (also known as PPP Server) replaces the LAN Distance product. LAN Distance must be removed with the LDREMOVE command prior to installation of Remote Access Services.
- Print Services Facility
  - We have had to implement a two-stage installation of PSF/2. We implement these two steps in one command file - PSF2PREP.CMD. This procedure first copies the source files to a local drive. It then calls the INSTALL through the LCU batch procedure.
- Netfinity Services
  - For further information on the installation of Netfinity Services, refer to the separate Netfinity Services CD that came with the OS/2 Warp Server for e-business package.

# Installation - Phase One (5 of 6)

- Lightweight Directory Access Protocol (LDAP) Client Toolkit
  - OS/2 Warp Server for e-business supports Lightweight Directory Access Protocol (LDAP), and the product contains a client toolkit which may be installed. It is installed using Feature Installer. For further information on the LDAP client toolkit please refer to the online documentation and the \CID\SERVER\LDAP directory on the OS/2 Warp Server for e-business
- Tivoli Management Agent (TMA)
  - For further detail on the installation of the Tivoli Management Agent, refer to the online documentation and the \CID\SERVER\LCFAGENT directory on the OS/2 Warp Server for e-business CD ROM.
- Lotus Domino GO Webserver
  - OS/2 Warp Server for e-business includes a fully functional trial version of Lotus Domino Go Webserver. Lotus Domino Go Webserver is installed using Software Installer.

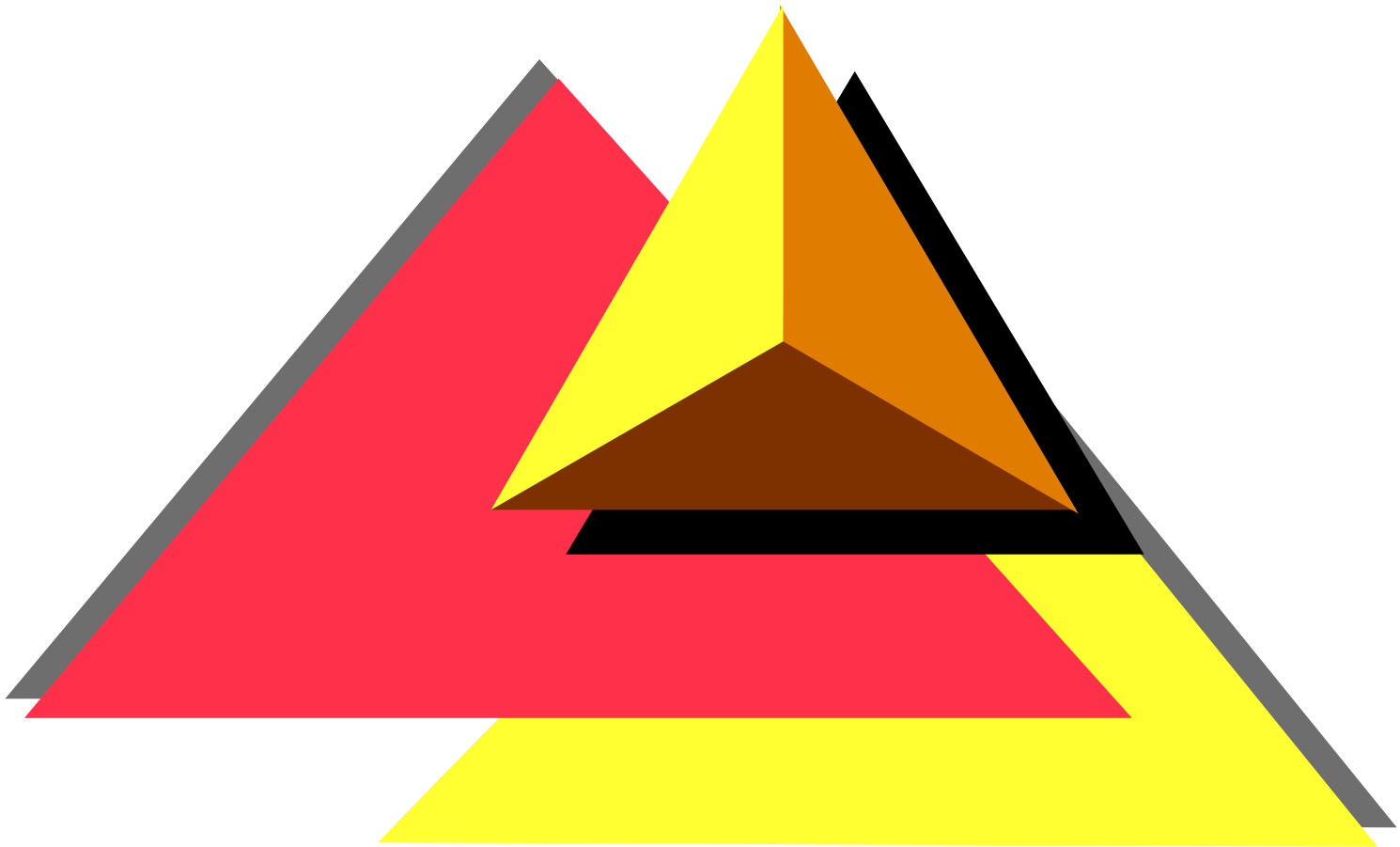
# Installation - Phase One (6 of 6)

- Websphere Application Server
  - We found that the installation of WebSphere was not entirely CID enabled. In order to achieve successful unattended installation, we created a REXX command file WEBSPHER.CMD. This command file is shipped on the CD ROM with this book.
- OS/2 Warp Server Books
  - If they must be installed, then they can be by a REXX script called INSTBOOK.CMD, located in the \IBMINST directory on the OS/2 Warp Server for e-business CD-ROM.
- IFSDEL
  - IFSDEL removes the files installed by THINIFS.
- CASDELET
  - CASDELET removes all trace of LCU from the system. It is executed after all products have been installed.

# Unit Summary

You should now be able to:

- Plan for migrating an existing system to OS/2 Warp Server for e-business
- Prepare a system for migration
- Understand the issues of CID migration techniques
- Understand the steps needed for simultaneously migrating to a new hardware platform and OS/2 Warp Server for e-business
- Migrate a system using panel install



# Resolving Problems

# Objectives

After completing this unit, you should be able to:

- Identify locations and purposes of various log files
- Identify references for various messages
- Analyze logs and messages to identify components related to the failure
- Disable autostart of server components and manually start each component in the proper sequence
- Resynchronize server passwords between Domain Controller (DC), backup DC and additional servers
- Identify appropriate support assistance (application, IBM, vendor, hardware, and so forth) and use proper channels to invoke that support
- Understand the purpose and setup requirements of system problem determination (PD) data gathering tools that may be required by support
- Identify sources of fixpacks, components that the fixpacks apply to, and methods to install fixpacks
- Identify courses and materials for additional problem determination training

# Initial Problem Documentation

- Gathering Initial Problem Documentation Data
  - Information provided online
  - Reference books
  - Levels of support personnel
  - List of user environments
- Is it Hardware?
  - Any new hardware been added?
  - The hardware functioning?
  - Entries in the message log files indicating a hardware problem?
- Is it Software?
  - Problem associated with a program?
  - Nature of the problem?
  - System Error log indicate a software problem?
  - Problem Determination Tools -> System Error Log
  - SYSLOG command
  - Application error messages displayed?
  - System error messages displayed?

# Installation Log Files (1 of 2)

Installation Log Files Created in \IBMINST\LOGS Directory

| Subdirectory | Filename | File Contents |
|---|---|---|
| | CLNDESK.LOG | Desktop Shuffler log |
| | TOPINST.LOG | Top installation main log |
| \CONINST\ | CONINST.LOG | Coninst log |
| \FEST\ | LOCAL.LOG | FFST log |
| \IBMINST\ | MKRSP.LOG | Building response file log |
| \TCPAPPS\ | TCPINST1.LOG | TCP/IP log |
| \TCPAPPS\ | TCPINST2.LOG | TCP/IP log |
| \LOCINSTU\ | LOCAL.L2 | Network product installation status, including log of products installed |
| \LS\ | LOCAL.INS | LAN Server installation errors log |
| \LS\ | LOCAL.SRV | LAN Server installation log |
| \MPTS\ | LOCAL.MPT | MPTS installation log |
| \PSNS\ | CIDERR.LOG | PSnS installation errors log |
| \PSNS\ | CIDHIST.LOG | PSnS installation log |
| \BOOKS\ | LOCAL.BKS | Books installation log |
| \NETSCAPE\ | LOCAL.NET | Netscape installation log |
| \PPPSRV\ | PPP.LOG | Remote Access Services installation log |
| \PPPSRV\ | PPPCFG.LOG | Remote Access Services configuration log |
| \PSF\ | LOCAL.LOG | Print Services Facility installation log |
| \PSF\ | LOCAL.HST | Additional Print Services Facility installation log |
| \LCFAGENT\ | LOCAL.LCF | Tivoli Management Aent (TMA) installation log |
| \LDAP\ | LDAPERR.LOG | LDAP installation error log |
| \LDAP\ | LDAPHST.LOG | LDAP installation log |

# Installation Log Files (2 of 2)

Installation Log Files Created in \IBMLAN\LOGS Directory

| | |
|---|---|
| MESSAGES.LOG | LAN Server log |
| SCHED.LOG | LAN Server Log |

Installation Log Files Created in \MMOS2\LOGS Directory

| | |
|---|---|
| MINSTALL.LOG | Multimedia installation and configuration log |

Installation Log Files Created in \OS2\INSTALL Directory

| | |
|---|---|
| CD.LOG | Multimedia detection of CD-ROM information |
| CURRENT.LOG | Log of current installed items by feature install |
| DSPINSTL.LOG | Video display drivers log |
| FFSTINST.LOG | FFST log |
| IBMLSHST.LOG | LAN Server history log |
| INST_L1.LOG | Log created by Netscape |
| INSTALL.LOG | Base installation main log |
| LAPSHIST.LOG | MPTS history log |
| OS2MM.LOG | Multimedia detection of card, windows, etc. |
| TCPINST.LOG | TCP/IP log |
| WALINST.LOG | PPP Server installation module log |
| WINOS2.LOG | WIN-OS/2 installation path log |
| WPINSTAL.LOG | History log of installed items by feature install |

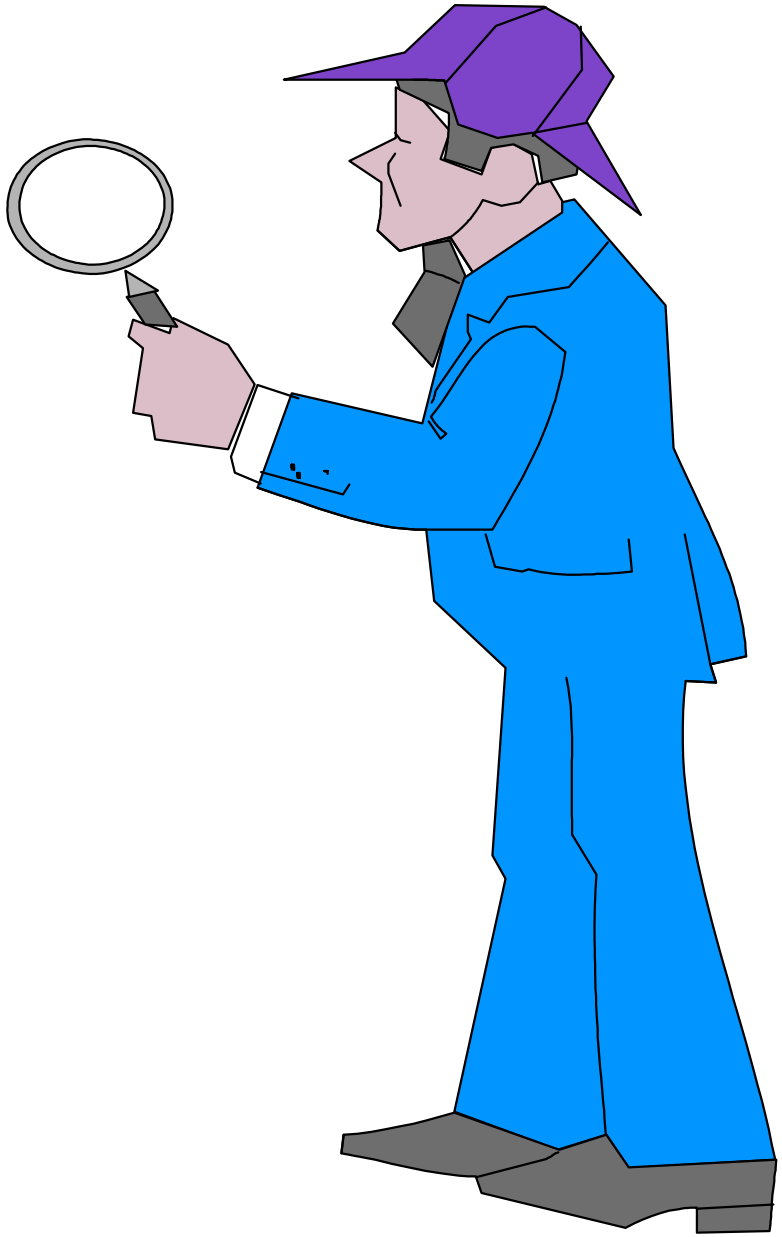
Installation Log Files Created in \OS2\INSTALL\NETSCAPE Directory

| | |
|---|---|
| NETSCAPE.LOG | Netscape installation log |

# Application-Specific Logs

- Application Documentation
- Net Error logs
  - Lan Server Error Log utility
  - NET ERROR </R /C:>
- POPUPLOG.OS2
  - SuppressPOPUPS=
- IBMCOM\LANTRAN.LOG
- IPE System Trap screen
- FFST
  - FFST setup
  - FFST documentation

# Identifying Server Component Problems



# Determine Appropriate Technical Support

- Logs
- Messages
- Failure symptoms

# Invoke Appropriate Support Assistance

- Invoke application supplier assistance
- Invoke IBM assistance

# Information

- Config.sys
- Logs
- Messages
- Recreation

# Contacts, Reporting, Logging

- Points of contact
- Tracking log
- Problem status

# URLs

http://www.austin.ibm.com/pspinfo/os2.html

http://ps.software.ibm.com/

http://www.service5.boulder.ibm.com/pspfixpk/nsf

http://service.boulder.ibm.com/asd-bin/doc/en_us/catalog.htm

http://www.developer.ibm.com/devcon/titlepg.htm

ftp://ftp.hursley.ibm.com/pub/java/fixes

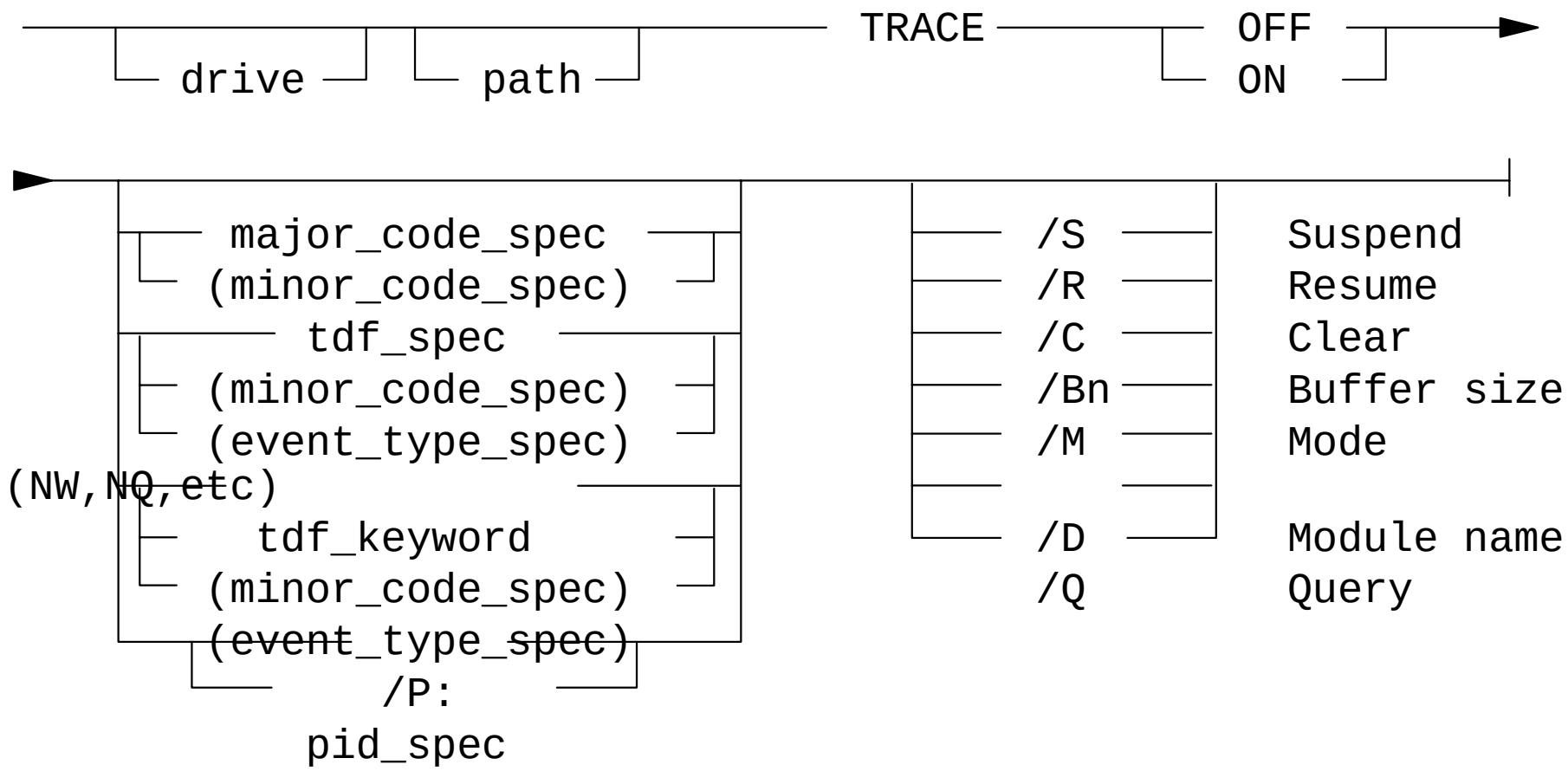
http://www.software.ibm.com

http://www.software.ibm.com/OS/WARP/PRODUCTS/AURORA

http://www.software.ibm.com/OS/WARP/PRODUCTS/WARP-SERVER

http://service.software.ibm.com/os2ddpak/html/

# System Trace Facility




- Related commands
  - TRACEBUF=
  - TRACEFMT
  - TRACEGET
  - TRSPOOL
  - TRCUST
  - PSTAT

# Trace Point Types (1 of 2)

- Trace point types
  - STATIC TRACE points
  - DYNAMIC TRACE points
- Static Trace Points
  - API Call (DosSysTrace)
    - Machine Exceptions Major Code: 3
    - Hardware Interrupts Major Code: 4
    - Device Helper Routines Major Code: 6
    - Disk Device Driver Major Code: 7

# Trace Point Types (2 of 2)

- Dynamic Trace Points
  - TDF files
  - TFF files
  - Inserted at instruction
  - Can be built for any DLL or application
  - System supplied
    - TRACE ON KERNEL(FS,LDR,NLS,PIP,SEL,SEM,SIG,TIM,TK,VM)
    - TRACE ON DOSCALL1(FS,LDR,LNK,MSG,MSP,NLS,SEM,TSK)
    - TRACE ON QUECALLS
    - TRACE ON SESMGR
    - TRACE ON OS2CHAR(KBD,MOU,VIO)
    - TRACE ON PMSHAPI
    - TRACE ON PMWIN
    - TRACE ON PMGRE
    - TRACE ON PMPIC
    - TRACE ON PMGPI

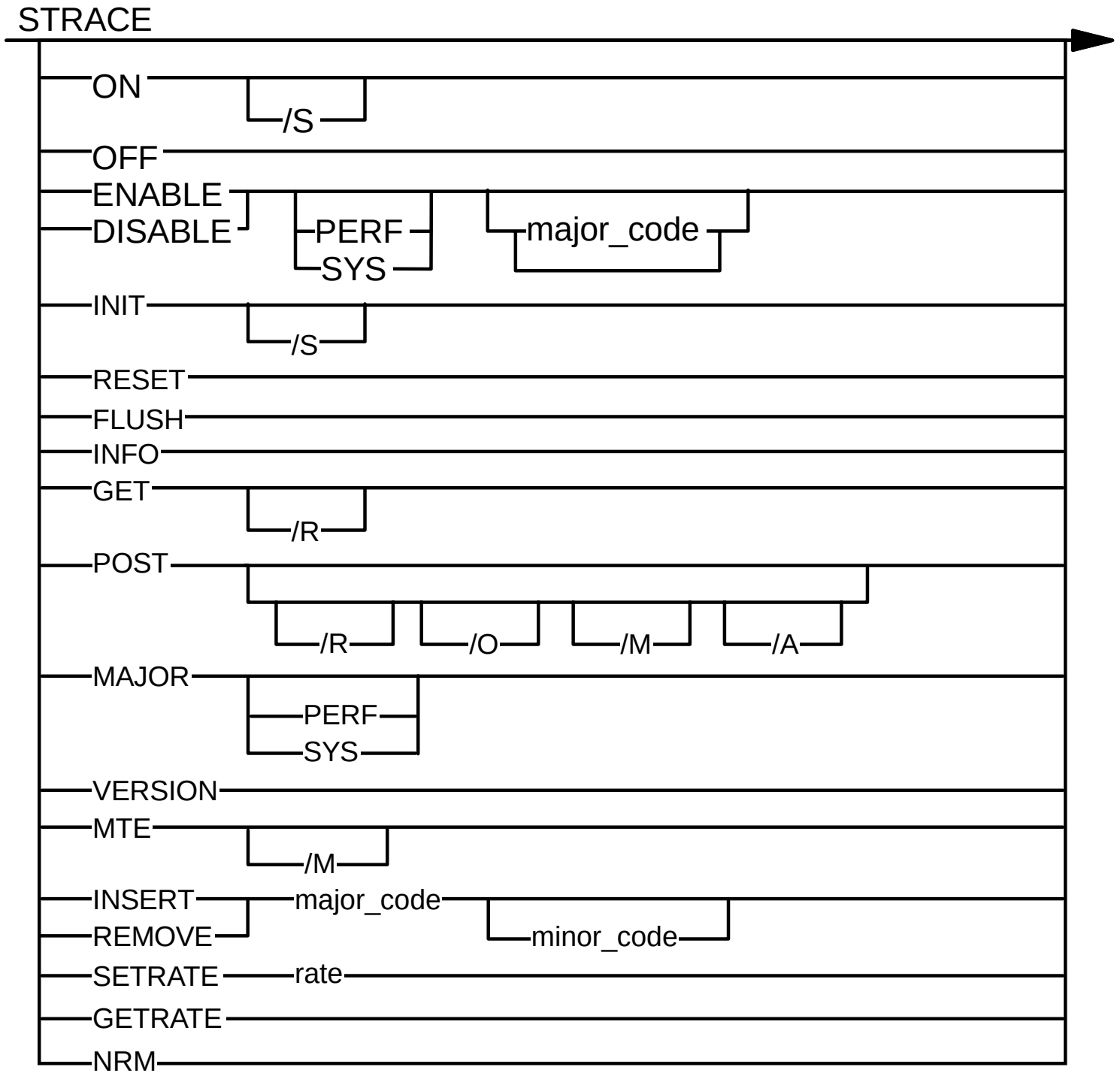
# Groups

FS- file system
KBD- keyboard I/O
LDR- resource loader
LNK- environment management
MOU- mouse I/O
MSG- message management
MSP- virtual memory management
NLS- national language support
PIP- pipe support
SEL- selector-related
SEM- semaphore support
SIG- signal handling
TIM- timer support
TK- task management
TSK- monitor support
VIO- video I/O
VM- virtual memory management

# Types

API- application programming interface
INT- internal
PRE- pre-processing invocation
POST- post-processing invocation

# Strace Facility (Performance Tracing)



# CONFIG.SYS

- CONFIG.SYS format
  - STRACE=INIT x
  - STRACE=ON
  - STRACE=ENABLE n1 n2 n3 ...
  - STRACE=DISABLE n1 n2 n3 ...
  - STRACE=INSERT n1 (SMP only)
  - STRACE=REMOVE n1 (SMP only)
- Trace Hooks
  - Exceptions and Interrupts
  - Dos (OS/2 Kernel) functions
  - DevHlp functions
  - Kbd functions
  - VIO functions
  - VDH functions
  - Vpic functions
  - WinOS2 functions
  - Internal Kernel related
  - Reserved for Customer

# IPTRACE

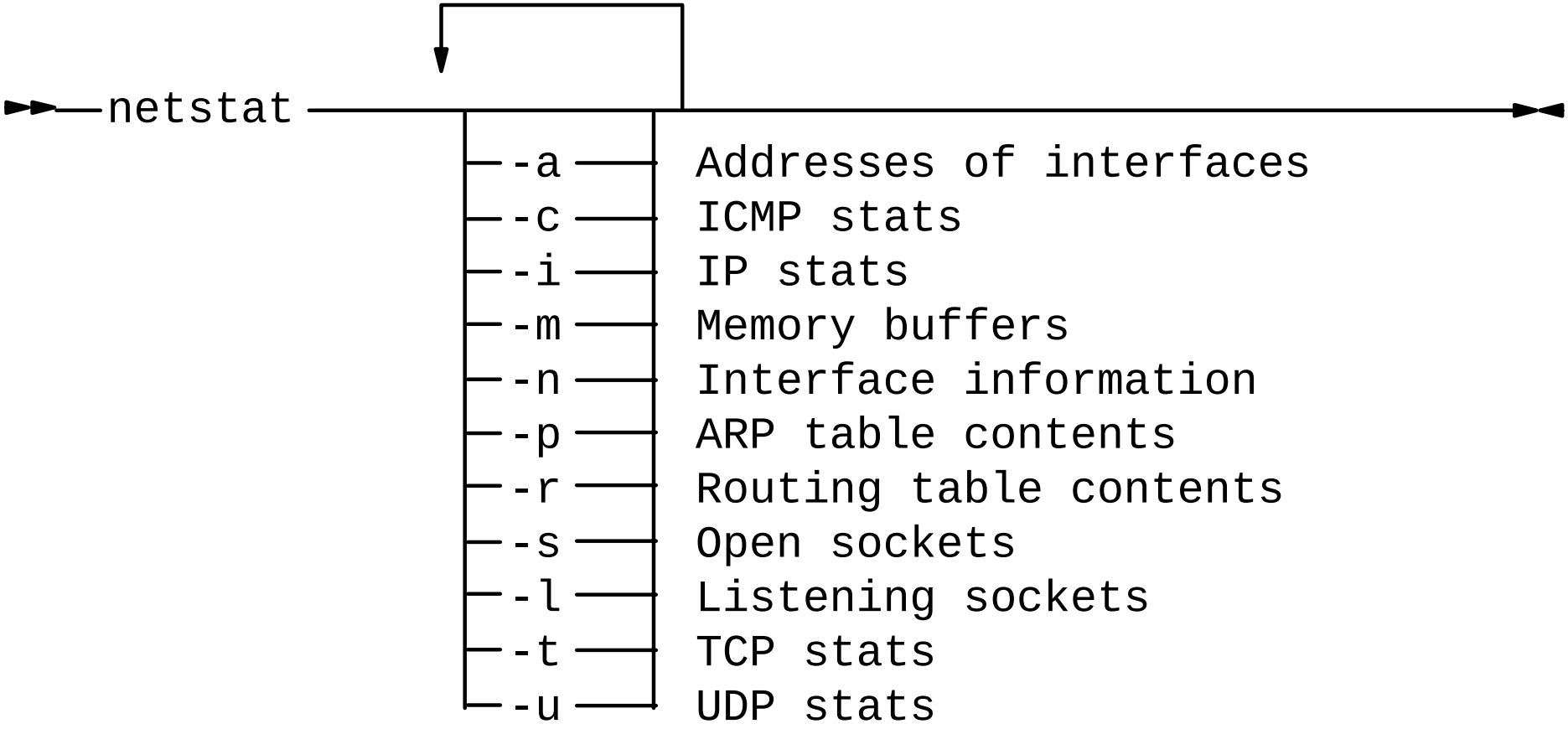
IPTRACE [-i] [interface]

IPTRACE (all packets on all interfaces)
IPTRACE lan0 (all packets on lan0 interface)
IPTRACE -i (IP packets on all interfaces)
IPTRACE -i lan0 (IP packets on lan0 interface)

IPFORMAT [-a]
[-d]
[-e<opt>]
[-f<file>]
[-h]
[-n]
[-s<hwaddress>]
[-x]

-a : Don't format ARP/RARP
-d : Don't display data portion
-e : Exclude <opt>: a (ARP), t (TCP), u (UDP), i (ICMP), g (IGMP)
-f : <input file> (default IPTRACE.DMP)
-h : Raw data after formatted info
-n : No hex data for unknown data
-s : ONLY format data for <hwaddress> (Source or Destination)
-x : Convert datafile to "Sniffer" format file

# NETSTAT Command



# SMB Trace Tool

- HPFS386 SMB tracing
- HPFS386 File System traces
- Requester SMB tracing
- Netbios and 802.2 tracing
- Import sniffer trace files

# Process Dump Facility

- Non-Intrusive
- Physical and Virtual memory
- Process selective

DUMPPROCESS=[Drive:\ppppppp][/F=x]

PDUMPSYS.EXE - Set default data to be dumped for Ring 0

PDUMPUSR.EXE - Set default data to be dumped for Ring 2/3

PROCDUMP.EXE - Set data to be dumped for a specific process

# PROCDUMP (1 of 2)

PROCDUMP [ON | OFF | FORCE | RESET | SET | QUERY]
[/L:<location>]
[/F:x] [/PROC:procnamelist]
[/PID:pidlist]
[/IPROC:procnamelist]
[/IPID:pidlist]
[/SYSTEM]
[/C:<x>]
[/P:<x>]
[/D:aaa, bbb]
[/K:<x>]
[/U]

# PROCDUMP (2 of 2)

- PROCDUMP ON [/L:<location>] [/F:x]
- PROCDUMP FORCE [/PROC:procnames] [/PID:pids] [/SYSTEM]
- PROCDUMP OFF
- PROCDUMP RESET [/PROC:procnames]
  [ /PID:pids] | /PID:all]
  [/L] [/F]
- PROCDUMP SET [/PROC:procnames]
  [/PID:pidlist]
  [/IPROC:procnamelist]
  [/IPID:pidlist]
  [/C:<x>] [/P:<x>]
  [/D:aaa, bbb, PADDR(ALL)]
  [/K:<x>] [/U]

- PROCDUMP QUERY

# PDUMPSYS, PDUMPUSR

PDUMPSYS <one or more of the following >
PDUMPUSR <one or more of the following >

| | |
|---|---|
| SUMM | - Summary information for each thread |
| SYSSUMM | - Summary information for all threads |
| IDT | - Interrupt Descriptor Table. |
| SYSLDR | - Loader data |
| SYSFS | - File System data |
| SYSVM | - Virtual Memory data |
| SYSTK | - Task Management related data |
| PRIVATE | - Private code and data |
| SHARED | - Shared code and data |
| INSTANCE | - Instance data |
| MVDM | - MVDM instance data |
| SYSMVDM | - MVDM data for all VDM and kernel |
| SEM | - Semaphore blocked threads |
| SYSSEM | - SEM data all blocked threads in the system |
| KRHEAPS | - Kernel Resident Heaps. |
| KSHEAPS | - Kernel Swappable Heaps. |
| SYSPG | - Physical and Page Memory records |
| SYSIO | - IO subsystem structures |
| TRACE | - System Trace buffer(s) |
| STRACE | - STRACE buffer |
| ALL | - all of the previous mentioned options |
| LADDR(list of ranges) | - Dump a linear address range. |
| PADDR(list of ranges) | - Dump a Physical address range. |
| PADDR(ALL) | - Dump of all physical memory (system dump) |
| UPDATE | - allows adding additional options |

# System Dump Facility

TRAPDUMP= [OFF,Drive: | ON,Drive: | R0,Drive:] [,PD]

OFF - No automatic dumps

ON - System dump on either application or system failure

R0 - System dump on system failure only

Drive: - Diskette or HD Partition.

Partition requirements

- Size of ram plus 1-2 MB (minimum)
- Formatted FAT
- Volume lable of SADUMP
- Bios (Int 13) accessable
- Compatability lettering

# Debug Kernel

- Kernels
  - Retail
  - Hstrict
  - AllStrict
- Hardware
  - Ascii Debug Terminal
  - null modem cable
    or
  - Modem
- Optional
  - Symbol files
  - Trace Formatting files (TFF)

  - OS2LDR
  - PMDD.SYS
  - PMGRE.DLL
  - PMWIN.DLL

  - KDB.INI init control file

# Installing Fixpacks

- Determine components
- Determine versions
- Determine sites
- Obtain fixpacks

# Driver Updates (IBM and Third Party)

- Device
- Video
- Printer

# Review Fixpack Information (Readme)

- Install considerations
- Operational considerations
- Additional features

# Choose Install Method and Install Fixpacks

- RSU (three flavors)
- Service
  - Selectable drives
  - GUI
  - Deferred
- FService
  - All drives
  - VIO
  - Immediate (diskette or maint partition)
- Archive and backup directories
- CID
- Removing old backups (commit)
- Reversion to previous levels

# Additional PD Training

- Warp Debug Classes (SG24-4640 INF file)
  - PS90/PS900 5 days
  - PS91/P1191 3 days
  - PS97/P1097 2 days
  - PS98/P1098 4 days
- Lan Server PD Workshop
  - IBM Austin
- TCP/IP Architecture and PD
  - S9107/G3740 3/2 days
  - S0260E/G3787 4/5 days
  - S0429E/G3861 3/3 days
  - NW043/NW430 3/3 days

# Unit Summary

You should now be able to:

- Identify locations and purposes of various log files
- Identify references for various messages
- Analyze logs and messages to identify components related to the failure
- Disable autostart of server components and manually start each component in the proper sequence
- Resynchronize server passwords between Domain Controller (DC), backup DC and additional servers
- Identify appropriate support assistance (application, IBM, vendor, hardware, and so forth) and use proper channels to invoke that support
- Understand the purpose and setup requirements of system problem determination (PD) data gathering tools that may be required by support
- Identify sources of fixpacks, components that the fixpacks apply to, and methods to install fixpacks
- Identify courses and materials for additional problem determination training